NEW SERIES. No. 32.] [OCTOBER, 1899.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PSYCHOLOGICAL PHILOSOPHIES.[1]

BY SHADWORTH H. HODGSON.

THE title Psychological Philosophies may, not improbably, suggest the objection—But are not all philosophies of necessity psychological? And it is true, that any philosophy must include some psychological theory or other, inasmuch as, being or aiming at being a Knowing of the most comprehensive kind, it would be incomplete without taking account of the Subject, process, and function of Knowing, as well as of its content or object known. But this is not the sense in which the term *psychological philosophy* is here used.

To see this we must consider, that the purpose of philosophy is to obtain, if possible, some true and systematic theory of the Universe of Being. That of psychology is to obtain an equally excellent theory of the Soul, Mind, Spirit, or other agent, of which, in the case of Man, Knowing is a function. The two pursuits are thus closely allied, Knowing as a function being at the least common to both; while at the same time they are disparate, when they are compared with each other, and defined by the purposes at which they severally aim.

It can now be seen what is meant by calling a certain class of philosophies psychological. They are those which base, or attempt to base, a theory of the Universe of Being upon psychological conceptions or psychological hypotheses; or, in other words, to explain the nature and activities of the Universe, or of the Great First Cause, the Divine Being,

[1] Read at the Meeting of the Aristotelian Society, 12th June, 1899.

by means of the nature and activities of Man, the highest in the scale of the real beings which are positively known to us by experience. In short, they are those which give a psychological answer to the philosophical question, and thereby raise psychology to the rank of philosophy by solving its distinctive problem as to the nature of Ultimate Reality.

I avow that, in my estimation, all such attempts bear written on their face the mark of presumption and impracticability. My reason is, that they begin with the assumption of a subjective agent or agency, as for instance when they start with the distinction between Body and Mind, or between Subject and Object, without first ascertaining and justifying the meaning of these or similar terms by simple analysis of consciousness. Nevertheless so long, and so far, as the psychologists fairly face the philosophical problem, acknowledging that the problem of which they offer a solution is the problem which is distinctive of philosophy, they fairly entitle themselves to the name of philosophers, and their arguments are fairly entitled to be heard and pondered, and their solution, if found satisfactory, to be not only admitted but welcomed in all philosophical circles, welcomed heartily and with applause.

I hope, in that case, that I should be found among those who were ready to retract their former adverse opinion as erroneous, and frankly acknowledge their mistake. I am not, however, intending to argue the question in the present paper. What I wish to do now is to give a somewhat more particular account of what psychological philosophy is, by distinguishing the main classes into which it falls, and by which it is represented at the present day, so that by its marks you may recognise it, when you happen to meet with one of its representatives. I class these philosophies under three heads, or theories of three kinds: 1. The Soul or Mind theory; 2. The Ego theory; 3. The Mental Function theory.

1. The good old Soul theory is of venerable and prehistoric antiquity. Things were supposed to be alive because they had souls in them, just as leaves are held by scientific people to be green because they have chlorophyll in them. Mere Matter, it was thought, could not animate itself; it must possess a principle of animation which was not itself material, in virtue of which it became the vehicle of life, sentience, intelligence, and intelligent action; that principle being, in fact, the real though hidden agent in all cases where the body, which was its vehicle, appeared to live and act as a sentient and intelligent being.

But this theory of a Soul or Mind was evidently applicable

not only to individual persons, but to the whole of Nature, except such articles of human construction as were obviously lifeless. There arose accordingly the theory of an *Anima Mundi;* a theory which Virgil beautifully expresses in lines which he puts into the mouth of Father Anchises in the Elysian Fields (*Æneid* vi., 724-734). We may call it, from an expression there used, the *Mens agitat molem* theory. From this Universal Soul or Mind individual persons were supposed to receive a particle or spark,—*divinæ particulam auræ*, as Horace calls it,—on their coming into being. It was the source of their immortality, their indefeasible title to Heaven. This theory is now chiefly current in theology and poetry. It is probably the theory intended to be reformulated by Leibniz in his phrase Monad of Monads, applied to God, and also by Wordsworth in his

> Soul of our Souls, and safeguard of the World!
> (*Excursion*, book iv., line 28).

All common-sense people know what a Soul or a Mind is, though no one else does. But let me not be thought for a moment to disparage or undervalue this use of the terms. Nothing can be farther from my thought than that. It is as explanatory terms, as terms in which a philosophic or scientific theory may be expressed, that they are (in my opinion) useless. As used for expressing and enforcing moral and religious truths, apart from analysis and speculation, they are, by dint of long and complex association, priceless and indispensable.

2. As terms of philosophy or science they must be held to have given place to a new form or modification of themselves, namely, to the second theory I have mentioned, the theory of the Ego, when Descartes laid down as a self-evident truth, and one of the corner-stones of his philosophy, the famous dictum, *Cogito ergo sum*. Strictly, modern philosophy begins with that dictum, as the first distinct recognition of subjectivity; that is to say, that immediate experience was the source and test of knowledge. By the *Cogito ergo sum*, in place of the conception of a Soul or Mind, there was substituted the conception of an Ego or Self, the distinctive character of which was Self-consciousness. The fact expressed by the *I think* was immediately recognised by every one as his own indisputable experience; and the inference drawn from it as *causa cognoscendi: Therefore I am*, was also recognised as an indisputable statement of the reality of the agent, or *causa existendi*, of the thinking.

But the nature of the Ego or Self was still undiscovered.

What it was, and *how* it gave rise to thought, was not disclosed. The dictum itself, therefore, the *Cogito ergo sum*, still remained a piece of common-sense experience, and the agent which it asserted, the Ego or Self, was not in reality fitted to serve as an hypothesis accounting for the experiences, that is to say, for the perceptions, thoughts, and actions, of sentient beings. No doubt whatever, that I, you, he, felt, thought, and acted; but what was the I, you, he, apart from our feelings, thoughts, and actions? Of this, although self-conscious, we were just as ignorant as we were of the nature of the Soul or Mind, now supplanted by this newer hypothesis.

Thus breaking down as a psychological hypothesis, it was *a fortiori* unable to form the basis of any tenable account of the nature of the Universe. It was a conception without any content of its own, empty of all content save that which it was required to explain. It was a mere tautology. In vain was Fichte's attempt to raise the Ego to transcendental rank, as an Absolute Ego. In vain J. F. Ferrier of St. Andrews, in his *Institutes of Metaphysic* brought it down again to earth, and endeavoured to deduce, in Euclidean fashion, a whole system of philosophy from his First Proposition, which runs thus: "Along with whatever any intelligence knows, it must, as the ground or condition of its knowledge, have some cognisance of *itself*". What *is* an intelligence? *What* knowledge has it of *itself?* The old question still recurred, and still remained unanswered.

Meantime the ground won by the Cartesian *cogito*, the advance towards subjectivity in philosophy, had not been lost. The *content* of feelings, thoughts, and actions, was still there as of old; and though it was evident that the Ego was no unit with a positive content in that character, it was equally evident that there was unity in feelings, thoughts and actions, in the form of an ever-present combination of them, as parts of the history of individual persons, or so-called self-conscious living beings. The question now was, in what did this unity consist, and in what part of the self-conscious personality did it originate and reside?

3. The way was thus laid open to theories of the third class mentioned above, the Mental Function theories, as I have called them. Conspicuous among these is the Hegelian theory, which singled out the function of Thought or Thinking, so far as it was pure consciousness, as that which evolved and explained the rest, and all that they contained. In order to place it in this commanding position two assumptions were necessary, (1) that it possessed energy or activity in its own right, acting under a logical law of its

own, the principle of Negativity; (2) that it also possessed in its own right at least one conception, that of Being, not derived from any alien, that is to say, from any perceptual source. It was supposed to be a purely mental or spiritual activity, to the eternal operation of which were due the nature and the existence of that which ordinary common sense calls the Universe, including the Great First Cause, or Divine Mind.

It was the peculiarity, and, perhaps, as some may think, the inconvenience, of a theory which thus selected a single psychological function, detached from the rest, to bear the burden of explanation, that, unlike theories of the two former classes which proceeded from psychology to philosophy, it was compelled on the contrary to begin with philosophy, and supply a theory adequate to explain the Universe, before descending into psychological questions. Indeed, so far as I know, psychology proper was something to which Hegel never did descend. He was satisfied with explaining, first the world of inorganic matter, or Nature in Time and Space, then the world of individual minds, considered chiefly in their relations to one another as members of a vast society, and finally the Absolute Mind itself, as one and all identical with a single psychological function, namely, with that creature of his imagination, Thought; or, as he also expresses it, with the Self-determining Concept (*Begriff*), whose law is Negativity.

It is difficult to see how a theory which holds that everything is what it isn't as well as what it is, on the ground that its full Concept or *Idee* can only be formed by taking account of what it is contrasted with, while that full Concept or *Idee* is the thing itself, can afford an explanation of anything whatever. But although Thought, as a function acting by the law of Negativity, has of itself no fixed point on which an explanation can be suspended, yet it may be supposed to attain one when it reaches its full and complete realisation in the Absolute Mind (*Geist*); and then, on reaching that realisation, which it is supposed to have done from all eternity, it returns as it were into itself, its path of development as a function being considered as describing a closed circle, having its end and its beginning identical. But in that case, the Absolute Mind being thus complete, and free from the action of all Negativity which is not included within itself,—an action which, if admitted, would destroy its absolute character,—is, in respect of its being the source of all activity, neither more nor less than our old friend of the first class of theories, that *nominis umbra*, the Soul or Mind which animates the World. And it is from that conception, if from anything,

that its explanatory power must be derived. The theory may therefore be held to be an instance of atavism, notwithstanding the obvious difference, that, in its new shape, the Mind is supposed, not merely to animate, but also to evolve Matter out of its own conceptual activity.

Another great instance of the Mental Function theory of the Universe is afforded by Schopenhauer, the title of whose principal work, *Die Welt als Wille und Vorstellung*, expresses that contrast between Real Agency (*Wille*) and its phenomenal manifestation (*Vorstellung*), of which what we call the Universe consists. The Will takes the place of the Kantian Thing-in-itself, the real but hidden agency which we ourselves, though self-conscious, really *are*, whatever else, as phenomenal beings, we may appear to ourselves and others to be. Self-consciousness, which is intelligence, enables us to arrive at the insight, that all Individualisation, and all our desires as individuals, are not our real being, but must be denied and renounced, if we would be free from illusion, disappointment, and pain, which are their necessary accompaniment. The selection of the Will as the mental function explanatory of the Universe gives, as might be expected, a practical rather than a speculative character to philosophy. It results in the precept, to merge the individual in the universal Will, and cease to exist in distinction from it. To this end the function of intelligence is merely instrumental.

From these instances, which I do not attempt to criticise, I leave it to my hearers to judge, whether psychology is ever likely to furnish us with a conception or hypothesis, which will be a secure foundation for philosophy. The human conscious Subject, as it seems to me, is too small a part of the infinite and eternal whole, to be taken as a sample of all conscious Subjects which may possibly exist, and of whose nature we can form no positive conception whatever. And if not of the nature of the Subjects, still less can we form one of the nature of those experiences which constitute their several worlds. It is, therefore, hopeless, in my opinion, to attempt the solution of the philosophical problem by the way of psychological conceptions; though by this I by no means intend to affirm, that a full speculative solution, such as is promised by the way of psychological conceptions, is really attainable by the way of philosophical analysis, or by any other way which may be devised. The only solution rationally attainable may, and probably will, be found to lie in ascertaining the nature of those limitations, by which the attainment of a full speculative solution is precluded.

II.—ROUTINE PROCESS.[1]

By Gustav Spiller.

1. *The History of a Routine Process.*—A child is being taught to write. Laboriously he learns by heart the precise appearance of each letter. He does not distinguish between d's and b's, p's and q's. He dips the pen too far into the ink-pot. He blots the paper, and his characters are now too faint and now too pronounced. The letters he forgets to shape properly: neither higher nor lower, neither broader nor narrower, neither thicker nor thinner, than the example. The pen is not held in a manner which prevents unnecessary work or awkwardness of movement. The paper is placed wrongly and is not kept clean. The arm is not sustained in the particular fashion required, and the whole bodily bearing fails to conform to prescribed rules. The necessary speed is not attained. The words are not properly divided. The lines are not at right angles to the sides of the paper. The spaces between these lines are not uniform.

Much which is objectionable, the child picks up by the way, and thus he has afterwards to unlearn what he injudiciously acquired. Many things the child is told, and some of these he forgets or misunderstands. Here, again, much ground needs to be recovered. When an explanation is proffered, the child has difficulty in following it. He does not at first remember with ease. He often stops trying to recollect something he has forgotten. He suspects. He doubts. He argues with himself. He asks questions. He corrects his copy. He watches every movement he initiates. He observes what progress he is making, and imagines what teachers, parents, or fellow-pupils will say. He repeats to himself: "I mustn't hold the pen so; I must hold it in this way". "That letter falls below the other letters of the line." "This letter I fashioned all right." "Oh! look at that blot!" "I wonder whether this is right." "I wish I had finished."

[1] Organic reaction, organic trend, and organised activity are used in this paper as equivalents of Routine Process or Habit.

Many years after the child studied the scriptorial art we meet a person who writes easily and well. This adult is the whilom child who found learning to write an arduous task. That accomplishment is no more a problem to him. He proceeds now without apparent effort of attention. How shall we account for the surprising change? To this question we propose to seek a satisfactory reply.

2. *Memorising the Facts.*—(*a*) In learning to write, various facts came to the child's notice, and these he was asked to remember. Through instruction, through both deliberate and chance observation, through reasoning, the facts were collected item by item. Committal to memory gradually made recollection of the material to be utilised perfectly easy. After the lapse of a certain period the child knew that which the man knows. As soon as any detail was required, it instantly presented itself. Having what is relevant firmly fixed in the memory, there is never—or almost never—a need to doubt, to suspect, to argue, to cast about, or to try and remember.

(*b*) A variety of accidental difficulties embarrass the learner. There is a blot—how is he to behave towards it? The new pen refuses to take up the ink—what is he to do? The position of his body is ill-chosen for writing—how is this to be remedied? His shadow falls on the paper—how shall it be prevented? The pen scratches or spurts, the penholder or pen is one he is not used to—how meet the difficulty? Such are some of the obstacles which detain the intelligent learner. These queries come to him at first as problems demanding a solution, and some of them may require severe thinking before they are disposed of. But as practice proceeds new cases tend to be extremely rare; for, once a difficulty is settled, the solution is soon well remembered, and the problem ceases to exist. Thus special instances which resemble problems do not present themselves as such; they are now mere recalled facts. Just as we bring back from the stores of memory a normal constituent in a routine or organic process, so we remember these non-organic cases, for they have really become part of the normal order. Consider an experience. The country road along which a certain individual passes is too rough for comfortable progress. He shuns the flints. If one of them is in one position he steps beyond it; in another position, he takes a shorter step; in a third he steps to the right; in a fourth, he steps to the left. By accident he may tread on an ugly piece of flint sideways, or on his heels, or sole, or tip, and in each instance he meets the difficulty in an intelligent manner. So with

the minor undulations of the ground, or in walking up hill or down hill, or on board a vessel—an appropriate solution is forthcoming for each instance. At first it might seem that on every separate occasion he is compelled to decide on one out of a dozen courses. As a matter of fact, each special difficulty has occurred previously, is remembered, and stands isolated. These cases cease to be cases of special difficulty. The solutions are firmly fixed in the memory. The obstacles as they appear, are settled by memory, and not by reasoning, speculation, or inquiry.

(*c*) The precise effort needed in the formation of any letter or part of a letter is recollected. Should more or less energy be required, the memory will gauge it. But for memory the hand instead of going slowly might go quickly; instead of in one direction it might move in another. The particular quantity and quality of muscular energy needed in an organic trend is not a matter of calculation. Suppose a man discards an umbrella and procures a new one. After he has used the latter for some time it strikes him that the umbrella flies open rather too quickly. Then it occurs to him that the springs of the new one act much more readily than the springs of the old did, and that he had neglected to observe the difference. In ignorance he spent as much energy in opening this umbrella as in opening his late one. That is to say, we do not take each case on its merits; we go by precedent. In writing, recollection stands in the same relation to the muscles as it does to sights or other sensations.

3. *The Process of Simplification.*—(*a*) At first, as we hinted, there is a many-sided interest. We wonder what is thought of our writing. We speculate whether we shall be praised or blamed. We doubt whether all is right. This interest is bound to depart in time, and also the play of mind connected therewith. No motives remain that induce us to busy ourselves concerning our caligraphy. There is nothing left to wonder about—except, perhaps, our bad handwriting. The atmosphere of thought has changed.

(*b*) The time and energy spent in doubting, hesitating, brooding, trying to remember, etc., are now saved. As the interest in writing declined, so have these agitations of the spirit proportionately decreased.

(*c*) At the commencement, especially when the child has little or no guidance, he is sure to make many mistakes. How is it that he forgets these? It is evident that writing would be most cumbersome if he first remembered the mistakes, and was bound afterwards to dismiss or correct them. If such were the fact organic trends would be buried

in confusion. Moreover, experience proves that he does not remember his mistakes. The apparent anomaly is accounted for as follows. When a right solution and a wrong one present themselves, he does not dwell equally on the two. The wrong one he regards with no interest and speedily dismisses. On the right one he dwells sensibly; he is deeply interested in it; he keeps it before his mind. Other things being equal, of the two subjects that which is dwelt upon is the one more easily remembered. Hence the right solution will tend to be recollected rather than the wrong one. Suppose he has for a second time to perform the action in which he dwelt upon the right solution and ignored the wrong one. That will happen which favours the former. He will make an effort to recall that and not the wrong one. Other things being equal, memory will favour the recollection of that which we make a sensible effort to remember. Hence the wrong solution is less likely to recur. Again, the right solution having been acted upon, the action is connected with the right solution and not with the wrong one. Hence thinking of the action will suggest the one and not the other. Further, the one solution having been acted upon, it was for a longer period before the mind, and memory will therefore favour the recollection of that one of two or more lines of action which has been previously acted upon. And again, the wrong solution is not only dismissed; it is recognised quickly, and therefore set aside the more quickly. We do not wait till it has fully unfolded itself. We thrust it back before it has seen the light of clear consciousness. Each time a solution is required, the right one is thus favoured, and the wrong one discouraged. Hence, on the average, the one not favoured is soon forgotten. Once more, other things being equal, that is recalled in which we are interested. Hence the right solution, in which we are interested, will be recalled, while the wrong one, in which the interest is negative, will tend to be forgotten. And lastly, since the right solution is acted upon frequently and at short intervals, it, rather than the wrong solution, will be fixed in the memory.

In the preceding reflections we have an ample explanation of the fact that error lapses. In learning to write such error tends to disappear, while the knowledge of what the process should be prevents new mistakes from arising.

The following propositions express the argument of this sub-section: (1) That on which attention is more exclusively centred is more easily remembered. (2) That which we do not, in the initial stage, make an effort to remember, is

forgotten. (3) That thought which is acted on is connected with the action, and is more easily recalled than that which is not connected with it. (4) That which is recalled, as well as dwelt upon, is more easily remembered. (5) If any part of what is erroneous is remembered it tends to be immediately dismissed from the mind or suppressed, thus hastening the oblivion of error. (6) That in which we are not interested, or where the interest is negative, is not recalled. (7) Only that, other things being equal, on which attention has been centred frequently at short intervals, is remembered.

(*d*) Suppose the child is about to write the letter "i". He admonishes himself "Dot your i's". So with the letter "t," he recalls "Cross your t's". Similarly he says, "I must hold the pen thus". In this fashion many of his actions are preceded by shorter or longer remarks. As he advances in his studies such preliminaries become obviously superfluous. The memory being perfected and the interest waning, these scaffoldings are removed in the manner indicated in the preceding sub-section. What happens with preliminaries happens with everything which is not essential to the process. One element after another lapses until nothing but what is essential to the action (as we learnt it) survives.

This elimination of what is non-essential is facilitated by another cause. We can only attend simultaneously to a limited quantity of objects. If we are considerably interested in one thing we cannot spare much interest to other things at the same time. Thus there is a constant tendency, as in congested areas, for thoughts to drive each other out of existence. We wish to write, and we want also to think of the subject-matter of the writing. The spare attention is needed. Hence a tendency to make no more ado about a task than is absolutely necessary. The lessening of the interest itself partly disarms opposition. When we are, therefore, concerned about something, any disturbing or unessential phrase, as "Cross your t's," is suppressed as soon as it rises or tends to rise. With these occasions multiplying, and our interest in the writing departing—in the manner explained in the preceding portion of this paragraph—everything unessential is forgotten. As the miller removes the husk, so our ideas in the process of learning to write are gradually reduced and steadily divested of what is non-essential, until the pure flour alone remains. The occasion for this grinding down presents itself in practice through the need of, or desire for, attention to other matters, and, hence, of our apprentice efforts, we retain only what cannot be rejected. The process of reduction needs no deliberate determination. We require

no special knowledge as to how to bring about the minimum of attention to our work.

Necessity grinds very small, smaller by far than we expect. We cannot be too clear as to the character of these important changes. Let us then see to what extent our ideas shrink. We have seen interest fade, difficulties vanish, problems disappear, preliminaries dispensed with. Next, the child forgets the formal aspect of the writing process. When his studies commenced he learnt that he must hold the pen in a certain manner if he wished to write with ease, that the arm should not be placed as the reinless fancy prompted, and the like. He knew, broadly speaking, why he did things and how he did them. This knowledge of the how and the why of the process was doomed from the beginning. Gradually losing his interest in writing, having no longer any need to refer to that knowledge, and being eager to attend to other subjects, he slowly forgets the how and the why. At first there was a conscious bond of time and order; but now all ties are gone. He cannot tell relationship, time, or succession. Each point is recollected independently of every other point. He cannot even indicate the *what*, though he knows what to do. The *what* has departed as an idea, and exists as a remembered act. As the child progressed there was no need to recall the *what*, the *how*, the *why*, or any other system of relationships, and so these are forgotten. We detect here no substituted or added constituent, only certain once-existing factors have been removed. All that could be dispensed with has been cast aside.

Necessity has dissolved the connexions which once prevailed. Hence the child cannot freely remember the process of writing, or its relations, or its successive steps. When a portion is conspicuous, as the holding of the pen, he easily imagines the attitude. But when called upon to give a description from memory of the whole process—static and dynamic—he, like the mass of men, breaks down in the attempt. Even most of what is supposed to be remembered proves erroneous.

We usually recollect things well, because they are interconnected in our thought. So many experiences resemble them, and they are related to so much else, that they remain in continuous touch with the general current of thought. Most objects have points in common with other objects, so that even when we, to all appearance, do not think of them, we yet have portions of them in mind. As we move hither and thither in thought we often come across stray notions, just as we meet friends otherwise than by appointment, and

when we do not meet these we yet encounter thoughts that involve fractions of them. Thus ordinary ideas have a fair opportunity of being recollected. In the case of the atoms we are dealing with, this is different. They lack universality and all relationship except the one that connects them with their stimuli. These "writing atoms," on account of their peculiar unfitness, never enter the normal stream of thought, and hence there is nothing to recall them. They lack intelligibility. They live entirely to themselves.

4. *Reduction of Effort.*—While advancing, the child discovers on frequent occasions that a less effort will accomplish his object as completely as a greater effort. He reduces accordingly his strain, and energy is thus prevented from running to waste.

5. *Appropriate Exercise.*—It is known that, within limits, appropriate physical exercise hardens and increases the size of the muscles, and that we are, as a consequence, able to carry out more with the same or a lesser effort. We are also aware that only continued effort, and not effortless exercise, leaves marked traces. As with strength, so with skill. Apart from what a perfected memory accomplishes, there is an additional aid given by neural development of some kind. We become, through appropriate exercise, more skilful than we should be otherwise. Nerve messages are conveyed with greater rapidity and unfailingness. For this reason, over and above what memory, oblivion, and reduced effort do to simplify an activity, circumscribed neural changes further lessen the necessary output of energy.

6. *A Comparison.*—Let us once more compare the process of writing in the day of the child's early apprenticeship with the state of affairs when he has naturally done learning. To begin with, there was ceaseless bustle, now there is none. Through considerations now well known to the reader, the amount of attention needed has been enormously reduced. The different parts of the normal routine are remembered without strain; difficulties which are likely to occur the child knows how to meet; he is no more interested in the process itself; conscious error is absent; there are no problems, or almost none; what is unessential has been forgotten; less energy is expended; and, lastly, the development of skill and muscle has further reduced the strain upon the attention. That is to say, effort has been toned down in four ways: (1) He remembers with ease; (2) he has forgotten what is unnecessary; (3) he has regulated the output according to the actual demand; and (4) his developed nerves and muscles work more efficiently with less effort.

There is, therefore, nothing mysterious in the seeming absence of complexity in routine. The energy required being largely reduced, the process is simplified in proportion.

7. *The Result of Liberating Attention Energy.*—Along with the changes which we have been describing has gone a silent transformation which we now proceed to state. We know that there is present at any time an equal amount of attention energy. If we require more energy in one direction, we have less at our disposal in any other direction, and *vice versâ*. Hence, as the process of writing is being simplified, the attention energy set free will be employed in other ways; and as the routine process reaches its maximum simplicity, the mass of our attention energy must be redistributed.

After slight practice we can spare just enough energy to look around us. Later on we may possess sufficient to hum a tune, and later still, to pursue long trains of thought. As, at the commencement, there was no attention energy available except for writing, so at the finish our writing makes no practical difference to the general current of thought. We have observed how in the struggle for life and comfort thoughts drive each other off the mental stage. The same procedure we encounter here in a modified form. At first, when a little energy is set free, when a kind of attention vacuum is created, and our eyes wander, there is embarrassment and the balance is disturbed. We are confused in our work and confused in our outlook. As more and more energy is set free the effort to divide the attention is repeated, and, persevering, the endeavour becomes more and more successful. Finally, we closely attend to our writing while also attending to other matters. Just as nature "abhors a vacuum," so attention energy ever strives to be fully employed. A simple experiment will provide a further illustration of what we are attempting to elucidate. A man takes two pebbles. He holds them in one hand. He throws them up into the air successively. He tries to catch them in the same hand as they successively return. At the start of the experiment he is confused. He has too much to attend to. In trying to follow the eccentricities of one pebble, he follows neither and catches neither. It seems impossible to him to attend simultaneously to both. While he is thinking of one, he neglects the other. His adjustments for intercepting them fail. Instead of closing his hand for an instant when the pebble touches it, he watches the other pebble. Instead of watching the other pebble, he closes his hand. But as he proceeds with the experiment the attention is thoroughly divided, and he acquires the coveted skill. After additional

trials he might be successful with three pebbles, or attend to the two pebbles and be thinking of other matters.

Thus it happens that while we are engaged in writing we are usually engaged in other directions also. When we are copying we may be listening to a conversation, if, perchance, our superfluous attention is not bent on something more serious. Gradually we have accommodated ourselves to write while following other lines of thought. On the one hand, interest urged us to disengage part of the attention; on the other, the presence of liberated attention energy sought an outlet.

8. *Does an Organic Trend ever Become Automatic?*—(*a*) Both the process of simplification and the acquired power of pursuing our thoughts independently may have suggested that writing comes to be in time a mechanical act where attention is superfluous. On the other hand, we saw that there is no fundamental change, only a simplification. A further proof of this, if needed, is easily forthcoming. We know, roughly speaking, that the attention energy is at different times equal in amount, assuming the normal waking state. If, consequently, we were absorbed in thought, we should expect that writing would proceed with difficulty and finally cease. This actually takes place. We cannot be completely absorbed in anything while writing, for divided attention is only possible when the attention energy is divided.

(*b*) A purely mechanical act would be one in which no sensations were present. This is not so with any habit, however confirmed. In learning we experienced sensations to begin with. These sensations grew gradually fainter. They are now so dim that they are hardly perceptible. But though not vivid they serve their purpose. They are still of the same use as before. Their unobtrusiveness only indicates a reduction in the energy employed; in other words, it records that less energy is wasted. These sensations represent physical activity, and only when that ceases do these sensations disappear. They are the index of work done. It will be found true that sensations are never missed from an activity which at any time was followed by them. It is also probable that wherever the influence of the unimpaired cerebro-spinal system reaches, there we have sensations accompanying physical activity. Perhaps that they are not essential, as is shown in the case of tickling the foot of a man whose spinal cord is injured above the point whence the nerves of the lower extremities emerge; for this man withdraws his foot, though he experiences nothing. But where the activity is central, or connected by nerves with the higher

nervous centres, there we shall find sensations alongside of physical activities.

(*c*) It might seem plausible to surmise that every step in a routine process is recalled by the step which precedes it, and that on the first step being recalled, the others follow automatically. The whole process, unless interrupted, would according to this hypothesis, run down like an alarm-clock. It would be as with a row of bricks appropriately arranged. As the top portion of the first brick received a push in the direction of the other bricks, it would fall on the second brick, which would fall on the third, and so on until the last brick fell. Facts, however, do not bear out this theory. It is not the outward stimulus that calls up the reaction ; for as the stimulus makes itself felt, so, at the same time, the reaction begins to emerge into consciousness. The stimulus touches a brain area where both stimulus and reaction are implicated. There is not one neural disturbance following another ; but one neural disturbance as a result of which we both perceive and act. And, likewise, along with the reaction there is already developing a tendency to elaborate a further stimulus. The disturbance, to state the thesis differently, is never strictly a local one. Hence we must reject the suggestion that routine process is a mechanical step-to-step process.

(*d*) We are bound to go further. With any complex process such as writing, we cannot stop at inconsiderable neural disturbances. We have to reckon with a need which persists throughout. When this is interfered with we cease to write. Such stimulating needs are the source of organised trends of every description, as indeed of every task. They represent a definite neural sensibility which enables the work to proceed. The cessation of the needs involves the cessation of the sensibility referred to, and the latter ceasing, the former ceases. It is this sensibility which conditions the ready reception of the stimuli and the ready reaction following. In the literal sense, therefore, we have nothing atomic or purely mechanical in a routine act like that of writing. We are still dealing with a complex.

9. *Organic Trends and Memory.*—The child is resolved to write the letter " r " more distinctly. Next time he sits down to write he does not remember his resolution. In some instances he knows that he is coming to an " r," and yet again and again writes in the bad old fashion. The explanation of this, after what has been said in the section preceding the last, is not difficult. The child pursues its task independently of other mental labour. He has drilled

himself in not permitting different activities to interfere with each other. Hence the writing tends to proceed along its own lines. A certain stimulus is constantly connected with a certain reaction, and when the stimulus is present, the reaction follows. Just as at first the slightest attention to other matters disturbed the writing, so now, on the contrary, it is extremely hard to disorganise this activity. We are so used, while writing, to ignore the general stream of thought, *i.e.*, not to allow the least interference with routine, that even thinking at the proper time of the desired change is sometimes not adequate.

Usually we check ourselves when we think checking desirable. But frequently we do not remember our resolutions at the right moment. This has an additional cause besides the one we have mentioned. The idea of the correction is not so firmly fixed nor so ready to pass into action as the fault we wish to remove. A slight stimulus would, therefore, recall the latter and not the former. Such is the normal reason why we often remember the correction after the blunder has been made, and why we as frequently fail to recollect our resolutions.

10. *The Place of Exercise.*—We will now determine the place of exercise, as apart from other causes, in the organisation of the process of writing.

(*a*) I have for many years been writing. I shall presumably write for some years longer, say twenty years. I shall, therefore, have an additional twenty years of exercise. Will my handwriting then be better, and shall I then be writing more rapidly, supposing mine be a normal case? Hardly. The probabilities are that twenty years of added exercise will make no difference worth speaking of, nor would fifty years' exercise even, setting aside the influence of old age. Exercise has no absolute value. A statement to the effect that "improvement in the quality and the speed of writing is in direct proportion to exercise," would be incorrect, as is also the milder form that "exercise strengthens faculty".

(*b*) In the elimination of what is erroneous and non-essential time rather than exercise is a favouring factor. While the former offers opportunities for the detection of improvements and mistakes, thus hastening the evolution of organised trends, the latter remains neutral as regards these changes.

(*c*) Memory is slightly strengthened, and development, to an inconsiderable extent, assisted by means of exercise.

(*d*) Only effort, persistent in its nature, causes sensible improvement in body or in mind. When effort is not

strenuous, or too strenuous, advance in ability is practically out of the question. Nor is constant progress, speaking generally, possible. A river incessantly wears away its banks, and wind and rain never leave off denuding a mountain. Not so with organic reaction. Exercise is not incessantly producing changes in direct proportion to effort expended.

11. *The Place of Judgment.*—We described the evolution of a routine process. We sketched the causes of that evolution; but we have not, we hope, suggested that the method is such that all men end in writing alike. The hands of a watch report progress automatically. The evolution of an organic trend is not of such a nature. The use of judgment, of which we will now speak, is a factor which cannot be too highly appreciated.

Suppose a man learns to write without a teacher, and under compulsion. He will surely make numerous blunders, while the mode of learning will be most difficult and prolonged. When the routine stage has at last been reached he will find that in comparison to those well-taught, he writes badly, makes many serious errors, and spends more energy on the writing than is necessary. He will also discover that a variety of problems are met by him unintelligently, and that many movements are not so simple as they might be. Organic reaction as such in no wise implies perfection. While one is a splendid writer, another may be a wretched scrawler. From the point of view of perfection it would be suicidal to consider time, exercise, and effort, as the only essentials in intelligent development. There are hosts of aged workers who are stupid, clumsy, slow, in spite of a life spent in a special class of work, while there are others more favourably situated, who do the same work better and with greater speed, although they have had but a year or two of practice. Efficiency would be almost universally absent if we acted upon the belief that with the lapse of time bad workmanship disappears or good workmanship evolves.

Let us assume that a young man is anxious to write well. He procures a well-tried teacher. Of beginners' blunders many are common, and others are infrequent. His teacher, through foreknowledge, prevents the majority of them from occurring, and speedily reforms the others. Few mistakes are permitted, and none are allowed to sink so deep that they are difficult to uproot. The pupil stands no risk of injuring spine, lungs, or eyes. He has not repeatedly to discover that he is on a squirrel track.

Thus far the teacher's help is negative. On the positive

side he communicates the shortest, the simplest, and the most effective manner of writing. He ensures that there is little to learn and less to unlearn. He reduces labour and perplexity. He knows just what should be done, and insists upon that alone. The consequence is that his pupil acquires the art of writing perhaps with one-third the trouble and in one-third the time expended by another who, though otherwise his equal, has had no teacher or a bad one.

Exercise offers no guarantee that we perform every movement in the most economic manner. In many an organised trend in which the parts are not obvious (and in most they are not), movements are executed circuitously. A life-time of exercise may make no difference in this respect. The most direct way is not revealed mechanically and is very often difficult to discern. A careful analysis will frequently show movements to be superfluous. Sometimes the prevailing method is cumbersome and wastes time, trouble, and effort. Sound training alone, not mere training, can produce the effect we should be aiming at. As with circuitous activities, so with the absolute amount of energy expended. Most men employ in organic reaction more energy than is needful. The initially superfluous output becomes the normal output, and thus part of a man's energy is frittered away. Thoughtful analysis alone indicates the proper quantity of energy demanded. Time should never be wasted. We need never cease learning or improving. Alertness, deliberate observation, and the study of others engaged in the same or a similar pursuit, all tend towards progress.

Not exercise but judgment is the most desirable. Judgment is also more important than time. Double the former and you quarter the latter. In many an instance half an hour's conversation with the right individual will do more than years of plodding. A wise man will learn nothing at haphazard, and introduce judgment into every activity. The child who learns to write, benefits in every way by the employment of his own and others' judgment. He ought to be taught that exercise alone will not bring him to his goal.

12. *Why is it Difficult to Influence Organic Trends?*—The learner has ceased to be a learner. The organic trend is fully formed. The apprentice has reached a stage at which he writes without troubling himself about the how of writing. Suppose he arrives at the conclusion that he soon feels tired when writing, while others do not. Suppose he decides to make the necessary changes which shall enable him to write without rapid exhaustion. The ideal procedure in such a case would be, first, to remember, and then to remove the

cause of the worrying sensation. As we have learnt in section 3, this homely method is not open to him. There is nothing in the memory that will suggest the cause. All temporal or logical bonds are forgotten. He does not know what causes what. He does not remember what he learnt or how he learnt. He is hence bound to investigate. Oblivion makes it difficult to introduce changes in routine.

He proceeds, then, to inquire. Perhaps one movement needs changing, perhaps two, perhaps three, perhaps twenty. Possibly the immediate source of discomfort is the result of the foolish position of one part of the body, and that of some other part. What is it, and which is it? He will not find it easy to decide. Perhaps one seemingly well-calculated change is introduced, and nothing satisfactory is perceived. Perhaps some unexpected effect results. Perhaps the change makes matters worse, and he writes more awkwardly than before. He tries a fresh position or movement and still another, but without success. Perhaps he remedies the evil, and introduces a greater in its place. No horoscope can be cast as to what will or what will not happen. He is dealing with what he can only understand when he perceives its effects.

To illustrate our illustration, let us take an experience with larger outlines. Strolling about in a poorer portion of London the following may be observed. The heels of those we are scrutinising are worn painfully low on one side. Suppose one of these people wished to remedy the defect. Merely to make a resolution that he would walk properly would be useless. If he tried to think of his walk he would most likely find nothing that suggested a solution. The same would probably happen if he proceeded to observe himself or others. Being baffled he decides on experiment. He walks somewhat differently to what he is accustomed to; but there is no apparent result. He alters his walk again. It seems to him that the change is an improvement. He advances a further step. Matters are worse than they were to commence with. He may thus go on experimenting for years and not achieve his purpose, or he may spoil his walk in other ways. It is not that he is unaware of what baffles him, but he cannot recall its cause effectively. In moving a step there are quite a multitude of motions with their accompanying sensations. These sensations pass through his mind. If he is attentive enough he perceives their presence; but he cannot hold them steadily before his mind or recall them at will, except after special practice. Even then, as one motion determines the succeeding ones, only the recall

of a series would be of assistance. Such a feat would be too much for a trained psychologist, let alone for an average man not practised in introspective analysis. Hence men, as a rule, do not experiment much. They discover how troublesome it is, and almost invariably decline the invitation.

Ordinarily, then, when it occurs to any one that he might improve his method of writing, he lightly passes over the suggestion. Perhaps he pictures to himself the labour it will occasion before he achieves his purpose. Perhaps, and this is more likely, he dismisses the thought because he has dismissed similar thoughts before.

Suppose, again, that a man does know what tires his hand in writing, and also what attitude is the most desirable. He has not therefore surmounted all difficulties. He must forget the old way, and learn the new. Now we have seen how independent a routine process normally is of other routine processes, or of the general current of thought. Hence he has no mean task before him. Each time he wishes to write, and all the time he is writing, he must be thinking of the alteration he intends making. If he neglects to do this, he fails to work himself out of the old ruts. Speaking generally, so firmly fixed are the existing arrangements that often months or years pass before they are forgotten and the new method has been assimilated.

Other difficulties arise. He might be preoccupied, and forget the experiment on which he had embarked. When a favourable occasion again offers, the idea of the experiment is not thought of and he unconsciously treads the old windings. Perhaps months afterwards he recollects that he had had a notion of introducing some alteration. He repeatedly forgets his aim for hours, days, or weeks, as the case may be. Hence the hope of success recedes. This induces a lowering of interest, despair of final victory, and disgust. But grant that he has persevered and succeeded. The gain is not patent. If each fault he wished to grapple with took a long time to overcome and entailed much trouble, he could at best correct very few slips during a lifetime. Besides, he could not think of altering several faults at a time. And one more difficulty. Suppose a man makes up his mind to retire at 11 P.M. He carries out his resolution. In due time, as explained, the resolution is forgotten. Then some opportunity presents itself to stay up later, and slowly the time of retiring is changed again. Such reversion to old habits is frequent, and must be reckoned with.

Though sweeping changes in adults are almost out of the question, and though innumerable organic trends can only be

transformed at the cost of much time and trouble, there are yet exceptions to this rule. Many an action which we have persisted in for years, as we shall see, may have its character altered at once, while various activities may cause little trouble in the changing. In some instances an intelligent method may rapidly produce far-reaching effects, and the introduction of a particular trend may scatter a multitude of objectionable activities.

Changes in routine are, as a rule, hard to accomplish. The lesson to be derived is elementary indeed. We must at the outset ensure that we do a thing well. We must prevent the ripening of objectionable activities and foster the development of such as mature reflection approves of. In practice, taking life as a whole, the alternative to obviating the growth of questionable activities is to bear with them stoically when they are formed. Attempts at general reform have failed and must fail.

13. *Early Education.*—To avoid the necessity of having to recast a multiplicity of activities, we must begin rational education with the infant. By the time the child is of school age, the general outlines of his nature are fairly settled. It is, for many reasons, hard then to change his character or to remove serious defects. Only the most thoughtful and the most thorough-going attempts will successfully counteract the neglect of the previous six or seven years. The reasons for laying stress on the first three or four years of life are as follows: (*a*) A child is physically, intellectually, and economically dependent. We possess, therefore, undisputed freedom to place him under conditions favourable to the development of desirable activities. (*b*) A child's memory is weak. Even when he is compelled to do a thing, he soon comes to do it spontaneously, having forgotten the grievance of compulsion. (*c*) A child forgives as easily as he forgets. He nurses no resentment. (*d*) The child's mind is not sufficiently ingenious to plot against its educators. (*e*) For the same reason as in (*d*) he can seldom understand or foretell the educator's intention. (*f*) A child has no deeply-seated objectionable activities. (*g*) A child easily acquires desirable activities, and as easily shakes off objectionable ones (and *vice versâ*). (*h*) When an activity has been formed early in life it displays the maximum capacity of developing into strength and efficiency. Such activity is very difficult to unsettle in later life. The opportunities of early training being so numerous, the earliest period should be made the most fruitful for educative purposes. It does not follow from the above that a human being's plasticity draws to a close at the age of six

or seven. The plasticity passes slowly, and can hardly be said to cease when we reach maturity. Skill, which is acquired with slight effort at fifteen, is impossible to the man of thirty-five—compare the respective capacities of these two ages for shorthand. Again, what the child of six can learn with little trouble, the boy of fifteen may be debarred from acquiring—efficiency in violin playing is of such a nature. In the evolution of routine the stage of general development must be borne in mind. As we grow older, deeper changes or fundamental acquisitions are less and less possible. Not by any means an insignificant factor in this staidness of age is the type of mind which the mature man evolves and the conditions under which he lives. Where the circumstances and the type are similar to that of the young child, there we expect and find similar results.

14. *Each Organic Trend is Based on others of its Kind.*—In analysing the evolution of the child's power of writing we assumed that we start with a non-organised process and end in an organised one. At the commencement, we were face to face with complexity; at the end, all was simplicity. There seemed to be a definite initial stage and a definite winding up. All these assumptions are far from being defensible. Strictly speaking, as we shall see at once, there was no beginning.

In writing we make certain muscular efforts which, we previously noted, are guided by recollection. If we neglect the general muscular memories, there remain only random movements; but we do not start with such in learning to write. We are consequently making use of existing systems in the formation of a new one. Organised trends, in other words, are only new to a certain extent.

Let us realise this more completely. A person is not used to lifting weights. One moment he exerts more energy than is needed, the next less. He sees a weight, but being ignorant of the precise effort required for lifting it, he mistakes the possible result of his efforts. Yet, after amassing experiences, he almost always puts forth the proper force. A glance recalls the appropriate effort, and the merest attempt at lifting suggests the weight. Picking up a piece of aluminium, the specific gravity of which we are not acquainted with, we find we have exerted ourselves too much. Moving a *papier-maché* table we feel, owing to our mistaken idea of its weight, a peculiar sensation caused by its unexpected lightness. We measure off the weight of an object by memory (sec. 5). We graduate our output of energy according to experience. Very early in life the child learns to know

the resistance of material objects, *i.e.*, how much effort it requires to move them or to raise them. When the child then begins learning to write, the majority of muscular efforts which will be required are already part of one or more organic trends. This knowledge he incorporates solidly into the action of writing. He has not to experiment afresh, for experiments have been long done with. If the knowledge of every movement had to be freshly acquired, the process of learning to write would assume monstrous proportions. Still, as in the instance when we lift a piece of aluminium for the first time, we have in learning to write a few special experiences. These are the new constituents in the trend; though they themselves are based on previous experiences.

As with effort, so with ingenuity. Previous to learning to write the child had years of training in skilfulness. The intelligence required in that branch of acquirements is only specialised intelligence—the old skill, plus a fragment of new skill. Various tasks which demanded little art, and resemble previous experiences, are performed accordingly by a simple reference to memory, while other activities, necessitating much specialised ability, are only partially assisted by older experiences. In any case, a set of general principles which result from growing experience help in the solution of each difficulty. Thus, with one person, a problem will be hard to unravel, while with another the solution is given by memory.

A like criticism applies to the part played by interference. The child has from a tender age suppressed uninteresting thoughts and dwelt upon interesting ones. This power of shaping a routine process is not a new power. It is itself organic and capable of improvement. If it be well developed, thoughts are more easily dwelt upon or dismissed. It is constantly being affected by experience. Hence it has nothing new to perform when we are learning to write. It is an established activity, more or less polished by use, memory, and judgment. In a somewhat fresh application, the old mechanism is slightly improved in a certain direction.

The argument may perhaps be forcibly brought home by considering the following instance. One man is in splendid condition as regards strength, skill, and judgment. Another man is not in good condition at all. Both are set to learn a business in which the three qualities mentioned are required. The former will learn it with ease, the latter with difficulty. The former possesses much of what is already required in the business, the latter does not. The former recognises much that is not new to him, the latter very little. Countless

difficulties the former has overcome in other connexions, and thus many perplexities do not exist for him.

The developed mode of writing can, therefore, only in an arbitrary sense be said to have had a beginning. The mass of what is organic was so before the child learnt writing, and remains organic alongside of the special capacity we are considering. We cannot hence consistently speak of commencing to learn to write. Or, rather, when we express ourselves thus, we must be clear that we are utilising the components of other organic trends, and that we are contemplating a compound of new and old tasks. In the new activity we have a specialisation of old activities.

15. *Each Organic Trend forms a Basis for others of its Kind.*—In learning to write we start with organised reactions. Naturally, when we have learnt to write, this new trend (the strength, skill, and judgment acquired) forms a partial basis for other trends. Thus a sign painter or lithographer profits from knowing how to write; the position we place ourselves into when writing may be advantageous for many purposes; the way we hold the pen may assist us in drawing; and writing itself might possibly be considered a department of drawing. We conclude, then, that the mechanism of writing is not self-contained, since it presupposes organic reaction, and serves as a basis, or forms a department of, other such processes.

16. *What is an Organic Trend?*—We have analysed at full length a particular example. In the last two sections we saw that an organic trend is not self-contained (if we allow that writing is a fair type of it). How then is a routine process circumscribed? What are its distinguishing marks? Is it a bundle of such processes? Or is there no such thing? Or is the idea of a trend a mere generalisation of convenience?

A man wishes to know the time. He pulls out his watch and looks. The hand points to two o'clock, while the hour must be about eight. Then he recollects that his watch has stopped for some days. The compass of this trend is very limited. Its development must have been correspondingly simple. As there is but one complex movement, and that one common to other movements, he has had next to nothing to learn. Even the fact that he takes hold of the watch by the ring, is matched by similar experiences. What is new is that he accustoms himself, in the manner explained in section 8, to look at his watch without allowing the action to interfere with his general current of thought. Even this is overstating the case. The element alluded to can hardly be called a new one. The whole process is primitive. We are constantly

engaged in doing with but the slightest interference what might be called fresh things, so that all we have new in this action is the somewhat greater ease with which the attention is divided. The intensity of feeling accompanying the suggestion of the act is reduced to an inconsiderable extent.

We may speak of the climbing over a stile as organically generated. Yet that action embraces perhaps not one new feature. A man climbs over a stile as he has been accustomed to surmount similar obstacles. Thus fifty different activities might be considered as fifty distinct sets of organic reactions when there is in reality but one. In the instance of the stile we are considering, not at all a simple one, there is no learning, no mistake, no oblivion, no effort of attention. The man scales the hundredth stile with perhaps no greater ease than the first.

Consider a man's general bearing. May he speak of it as organic? Perhaps he saw some one bow in a certain fashion. He admired the elegance of the gesture, and when he had to bow, he recalled his model. Or as he grew up he bowed as his sister or brother did, without deliberation. Or he adopted the various portions of the bow from various persons, not connecting in consciousness the different movements he had imitated.

Thus with the smile present on his lips; the manner he holds his head; the way his eyes meet others' eyes; the normal expression on his face. In short, he may speak of his total bearing as a definite settled whole; as acquired deliberately and in a logical order of which he is precisely aware. As a matter of fact, a mass of independent units are included in our bearing. A small portion of it, such as the manner one bows, may have been, as shown, acquired at different times and independently. More than this. Perhaps the bow is not a stable quantity. Parts of it may vary, or the whole of it change, as the outcome of a multiplicity of causes. So with the whole of a man's bearing. From the point of view of a careful analysis he cannot speak of his bearing as one trend, acquired and fixed in a deliberate order. He has before him rather an indefinite complex. A routine act is not bound by any dimensions. It is not independent of other routine acts. It may consist of a single elementary reaction or of a multiplicity of reactions.

The exact turning at which an activity becomes organic cannot be decided, mainly for the reason that no such turning is imaginable. Its hold even varies. Looking at a hat, we recognise it instantly as being a hat. How far a set of reactions can be simplified and apparently detached from the

general consciousness and control is a moot point. A trend might, especially when the organism is predisposed to it, require very little effort in the acquiring. The apparently mechanical opening and closing of the eyelids, for instance, resembles an activity such as writing. In simple routine the stimulus may be so faint that though it be recognised sufficiently to be acted upon, yet it is too faint for full perception. Moving the eyelids either consciously or unconsciously yields indistinguishable results. This we should expect. The process is so elementary that deliberation or absence of deliberation makes no appreciable difference. Opening and shutting my eyelids deliberately as I am writing, I cannot discover anything in the action that would differentiate it from a normal trend. No perceptible feeling of effort is traceable. There is only the sensation which accompanies the movement. There is present probably on the mental side, under average circumstances, a feeling of fatigue which is relieved by shutting the eyes. This feeling is very faint; but ordinary organic reactions have often no more distinct feelings accompanying them. In the case of moving the eyelids the act, there is every reason to believe, is initiated at birth, currents of energy being easily discharged in that direction. How far respiration and other similar processes may be classed as routine, the reader must decide for himself. Probably no distinct line can be drawn. The mere absence of perceptible effort, even the absence of an observable evolution in the action, apply to many processes which would not be looked upon as inherited. Every trend, by the very fact of its existence, must be considered as implying at least a modicum of predisposition. Hence the difficulty of drawing a line of demarcation.

If routine actions tend, in one direction, to merge into bodily functions, they tend to merge into deliberateness in another. What indeed is to divide these classes? As we reflect we become convinced that *a vast number of actions are repeated, that the majority of our activities resemble each other, that the various new tasks we perform are new but to an insignificant degree, and that certain principles elaborated by experience lie at the foundation of activity as a whole.* It would be safe to state that the overwhelming mass of what is new is more or less routine in character. Again, not all routine processes require little effort. So great are the variations in this respect that while some activities scarcely make a call on our intelligence, our attention, or our energy, others exclude nearly all unrelated effort and are most fatiguing.

Repetition of a process is no trustworthy guide as to the

extent of the stability of an established line of action. The following illustrates one extreme. A man is required to do something which he has not attempted before. A similar cycle of actions has to be attended to about every three minutes. An instrument which he needs he puts in an awkward place. During the first quarter of an hour the mistake is pointed out to him. He agrees that he is wrong. He appears anxious not to repeat the blunder. Though only three minutes intervene between the time he is corrected and the time he is to correct himself, he yet persistently errs. Often he declares he will put the instrument in the right place, and perhaps a second or two afterwards he becomes completely unaware of his declared intent. Though his eyes sweep across the object lying in the wrong place, he does not notice it. Many like instances might be cited proving the fact that mere repetition, or extent of time, are not essentials in the evolution of particular organic trends. The argument grows self-evident when we reflect that present activities are based on preceding activities, and that all action is more or less organised.

While the slightest exercise, as we have just noted, may firmly establish an activity, sometimes years of constant exercise will not accomplish that object. I recollect performing for years, and day after day, a certain action in a certain manner. Then I observed some one proceeding more intelligently. I resolved to imitate and found no difficulty in breaking with a settled custom. The next day a new era was inaugurated. No effort was requisite. No relapse ensued.

The ease with which an organic trend can or cannot be removed is not in proportion to the number of times the action has been repeated. For scientific purposes this must be borne in mind. For practical purposes it is nevertheless well not to forget that routine reactions require normally a certain time to evolve, and that a vast aggregate of activities, once they become fixed, are simplified, require little effort, and are hard to remove. Though no rigorous and comprehensive statement can be drawn up, it is advisable to bear in mind the general drift of the conclusions here arrived at.

17. *All Thought is Organic.*—We analysed a particular routine case. We attempted, by a general survey, to arrive at a conclusion as to its essential nature. Now that organic reactions cover an enormous area in the province of physiological action must be evident. But what position, if any, do they occupy in the more exclusively mental realm? We have reserved the answer to this question. The examples chosen were, generally speaking, purposely such as implied

motion. That was done so as not to prejudge the problem which we are about to consider.

Let a man imagine himself walking along a lane, playing with a ring on his finger, scanning the scenery around him, and mentally rehearsing a tune. When he first endeavoured to repeat the tune (or a tune) could he have repeated it as easily as now? Not if he was a normal individual. Some practice was necessary, equivalent to that we laid bare in the analysis of writing, before the tune could be repeated with so little effort that there was not even an awareness of rehearsing it. We meet here with a routine act, similar to that of writing. An important new element is this. The immediate stimulus and the reaction are both present in the mind. The tune proceeds within. One thing within the mind suggests, or is followed by, another in the mind. When we first thought of rehearsing a tune inaudibly we could not help remembering irrelevant, unessential, and erroneous topics. By a process previously explained these are eliminated. We encounter here also development, and the tune, as we might expect, runs smoothly, without interruption, and without much demand upon the attention.

Organic quality is still more clearly evinced in arithmetical practice. When I am asked "What are five times five?" I answer without delay "twenty-five". So, in adding up columns of figures, not only is there no hesitancy, but I add three or four figures at once with a like ease. When I was a child, things did not proceed so smoothly. I employed my fingers, my buttons, etc., to assist me in performing a simple sum, and even then I was more often wrong than right. Immense effort yielded little satisfaction then; but to-day little effort harvests immense results; for every possible instance of a certain type has been memorised. When I want to know what 1 and 1 are, I do not cast about for a reply, I answer forthwith, 2. Similarly with rules referring to mathematics generally. Solutions of often-met difficulties become matters of organic memory.

We saw that in a bodily trend we do not always obtain so elementary a solution as we desire. The same thing happens, and is of special import to us, in matters mental. Suppose a man is asked "What are 18 times 19?" (We will assume that he does the sum mentally.) He starts "10 times 18, 180; 9 times 10, 90; are 270; 9 times 8, 72; are 342"; or "20 times 18, 360; – 18, are 342". Though the answer is reached circuitously, the successive steps are yet rigidly connected. Every move in the total act is remembered like the moves in any common bodily routine process. There

is no halt between point and point, whether we have two steps or ten. They follow each other uninterruptedly. Their number does not affect the nature of the process.

There are many occasions in mental as in physical routine when we take a fixed but relatively round-about course. Some one asks how many days September has. His question is scarcely finished when I begin (unheard) "Thirty days hath September," (aloud) "Thirty days". I do not ponder, nor do I answer directly. There is neither doubt nor certainty present—only what has been described.

We shall revert to these intermediate links. Meanwhile we wish to take a more general view. Do organised reactions enter into thought proper? Is there an evolution of lines of thought? Does the process of judgment evolve like the process of writing? Are observation and imagination subject to training? Does the training, if such there be, pursue the same lines as the training involved in trends such as writing? However bold it may appear, we must answer the questions in the affirmative. Let us consider the reasons which induce us to take this course.

Suppose a man thinks that it would be best to dismiss certain impracticable thoughts, immediately they occur, by the turning of his attention into other channels. An opportunity arrives, he remembers his resolution, and carries it out. After a period of practice the resolution is forgotten or not referred to; but whenever anything impracticable suggests itself he dismisses it immediately. The resolution forms no link between the objectionable thought and the act of dismissal. As that thought appears, so it is thrust back. There may be, after a time, entire ignorance that certain thoughts are dismissed. The man may, for instance, either deny that such is the fact; or he may give some plausible but inaccurate explanation. As with physical activities, so with mental, a resolution need not be verbally conceived, nor need it be, at first, of wide application, nor need the sum of the consequences be apprehended. Much of a man's thought is as dim as the twilight, and hence there is often hardly anything definite to recall. An organic trend, such as the one just described, is an essential in thinking, and yet there is no perceptible difference between it and a physical activity of an organic nature.

Consider another example. Some one notices that when authors say, "There are three (or four, or more) ways of accounting for this phenomenon," they are frequently wrong. So he makes it a rule to question every numerical statement. After a time his resolution forms no part of the thought

process. Whenever he chances to meet such an expression, he ignores it, or quietly turns to investigate its correctness.

Again. Say a man thinks that it is important to observe objects directly, carefully, repeatedly, for a prolonged period, and under differing conditions; and to compare the observed objects, in the same manner, with different objects of an apparently like or similar nature. He may also have decided to extend cautiously any simple proposition which he draws up or any general fact. He may have determined to consider in discussion one item carefully, rather than skip from subject to subject. He may have made other wise or stupid resolutions for the conduct of his understanding; or perhaps he was taught these at home or at school; or perhaps he gathered them one point here or one point there; or perhaps he imitated that which appeared to him to be the method of his tutor's thought. In any case, the act which will follow the adoption of these resolutions will be of the same nature as that delineated when we traced the evolution of writing. The road of development will be strewn with many difficulties and pursue a devious course. In the end much of this man's reasoning will be performed in a quasi-automatic manner. The proposition or fact will be exploited in the fashion referred to. He will attend keenly, experiencing perhaps a great strain without being conscious of it, and disputing the fact of his procedure a minute afterwards. Recollection of theories stands in the way of rapid thought as of rapid action. Much of our limited energy would be wasted by attending to them.

The preceding examples show that experience and training impose on the mind as on the body. From infancy onwards a multitude of routine processes evolve; and these make up our character as practical men or as theorists. Apart from such activities it would be as impossible to conceive of intellectual labour as of bodily labour. Mental efficiency depends on properly developed trends. Given mental life of any kind in the child, and the course of events inevitably transforms that activity into an organic complex. Our modes of thought are thus necessarily organised.

It will be said: Granted the existence and the importance of trends in the mind, we still know that they are the result of non-routine activity. The business of the mind lies in forming these. They themselves are but the lifeless tools of the ego.

Analysis is not satisfied with that answer. We saw how in physical matters one routine act really grew out of others of its kind; how physical activity as a whole was organised.

We must, therefore, urge that every mental trend is the offspring of other trends, these simplifying as we retreat to infancy. Let us make sure of the meaning of the statement. In a mental series where we blunder along, vexed with doubts and difficulties, do we encounter nothing but organic reaction? When we learn our algebra, or our geometry, is there in the process of acquisition as much routine as when we know them well? However paradoxical it may appear, we answer Yes.

We observed already that the number of links in an act leaves the question of their possessing an organic basis unaffected. Rationality is no fixed attribute of such an act. This we have seen holds true of physical activities. Now all that we have to face in a difficult mental series is a large number of steps. A man is asked, "How many days has September?" He answers promptly, "Thirty". Or he says perhaps, "Let me see. September, did you say? I don't think I remember. I'll try, though. I believe there is a doggerel verse that might help. Confound it; I can't recall the verse. Yes, I can. 'Thirty days hath September.' I thought I could recall that verse. September has thirty days, my friend." It would be of the greatest interest exhaustively to analyse, if that were possible, such a string of thought. Here we can only state that every turn enumerated is of a kind and a class that we have employed in our mental experience times out of number.

To wonder, to be surprised, to doubt, to feel convinced, are all mental phases which have their place in general routine. The wonder follows immediately on something it has followed before, link on link, as we should expect. The multiplicity of links raises no problem, nor does the failure of the act to attain its end affect the matter. The fact that we have been thinking for years makes it evident that thought as a whole is a tangle of organic complexes. We doubt, as we have been accustomed to doubt. We show implicit faith as we have done on previous occasions. We meet the various facts of life from settled, often contradictory points of view. Occasions being similar, we tend to react similarly. The cast of a person's character is partly traceable to this fact.

It will be said that active consciousness is not organic when we are conscious of observing something. Why not? Are there not degrees of consciousness? Is it not past experience which decides when we shall be conscious or not? May we not be clearly conscious, and be quite unconscious that we are clearly conscious? Do we not frequently attend closely, and yet, because of routine, forget the fact almost

instantly? What does consciousness imply at most? That what we do is thought of in relation to other things; a heightened feeling and concentration which makes recollection of what is observed easier; an idea of self; one thought coexistent with and referring to another; a directing a part of the attention to something we are or have been attending to. Active consciousness is consequently liable to become part of an organic whole. For the same reason, man's self-consciousness varies with training and with the environment.

It may be thought that the possibility of being freely remembered is not predicable of organised processes. This is a mistake. Few settled tendencies there are of which a part cannot be freely remembered. Many there are, such as the case of known melodies, where the whole is necessarily remembered. Some bodily routine processes are often of a nature demanding recollection. On the other hand we find that the mental machinery as a mass is not open to inspection.

It will be urged, Surely an obvious difference remains to be accounted for. To this we agree. While holding that all activity, mental or physical, is organic, we may yet distinguish. There are, broadly speaking, certain trends whose business it is to elaborate others—tools to furnish products, or tools to create tools with. When we desire to arrive at a conclusion, the machinery starts with the very desire. Sometimes the mechanism succeeds, sometimes it fails. As the machinery is brought to perfection, so the product is turned out with ease and certainty. Just as the process of writing is perfectible, and gains by the judgment expended upon it, and this by virtue of its organic character, so the processes of thought are perfectible, gain by the judgment (which itself is routine) expended on them, and this by virtue of their organic character. From the point of view of special problems one kind of process may be called routine and the other not. It depends whether we are viewing a product as machinery or as the result of machinery. Thus, for convenience sake, some actions may be called secondarily organic, although they display an imperfect adjustment of means to ends. Such are activities connected with trades, professions, amusements, and individual pursuits generally. Because these trends are not acquired by all, they have attracted the attention of superficial observers. Trends which are less open to scrutiny may be dubbed primary.

18. *The Psychological Method.*—If our analysis of organic reaction be correct, then we are obliged to draw important conclusions as to the proper psychological method of investi-

gation. An organic trend means a simplified trend—one where all that is unessential is rejected and forgotten, where effort is reduced to a minimum, where the present is treated in the light of the past, where the bonds of time and order are absent, where reaction accompanies its customary stimulus. When we, therefore, speak of reasoning and thinking, or imagining and willing, or feeling and pleasure-pain, and allow that they are routine activities, it at once follows that, by themselves, these processes—though they adequately serve their respective purposes—lack intelligibility from a psychological standpoint, just as the process of writing does. They can only be explained organically, and in the light of the past. Whatever they were in their earlier stages, they are now entirely transformed. To expect to find in them connected and self-consistent wholes, such as our imagination might create, is out of the question. Hence careful observation alone can offer a clue to the various modes of mental activity. To deduce these modes from principles not based on the previous study of the special phenomena is as disastrous as thus to deduce the functions of the brain. The explanations which we have proffered, must, accordingly, be interpreted so as to include the acquirements of children, savages, and animals, as well as the highest flights of genius.

19. *The Cause of Organic Trends.*—The struggle for existence and comfort solves the riddle of the evolution of animal life. Had each species possessed in plenty what it required, the *raison d'être* of transmutation would have been absent. Thus with the evolution of organised thought. If attention energy were indefinite in quantity, all ideas might dwell peaceably side by side, except those which are in their nature opposed to each other. There would be no organised reaction. We should take an interest in everything and forget nothing. But attention energy is very limited, while our desires tend to be boundless. Hence a struggle for the field of attention ensues, as the result of which thought is simplified. On the widest view, therefore, the existence of organised forms of activity is explained by the struggle of varying interests for the narrow field of attention.

III.—PHILOSOPHICAL TERMINOLOGY (II.).[1]

By Dr. Ferdinand Tönnies.

(*Translated by* Mrs. B. Bosanquet.)

CONTENTS OF ARTICLE II.

II. *Causes of the state.*

62-68. 1, general causes—three arguments—referred to the forms of the social will. 69-71. 2, Historical causes. 72-78. 3, hindrances from the differences of thought—reflex of the history of philosophy—criticism of the mechanical rationalism—new concepts. 79. Conflict of terminologies. 80-81. Application to the doctrine of the will.

II.

62. The question has been raised as to the causes of the obscurity and confusion in psychological and philosophical terminology. The fact that such obscurity and confusion exists is assumed as given. Hence it is no part of our task to confirm this fact; but we must refer those who doubt it to a comparison of the best-known works, those which excel each in its speciality, of European and American origin. Almost each of these operates in these regions with different concepts, or at any rate with concepts which are differently determined. But even within each particular work, if we examine carefully, we shall not find a consistent terminology; but shall often find that the sense in which an expression was introduced, even the definition which was given with it, has been neglected and apparently forgotten in the course of the exposition, so that the reader who would rest upon it as upon a staff, feels it break in his hand. "If we regard philosophy so far as it comes into contact with the whole of life, we shall feel with pain the misunderstandings which stream from the uncertainty and confusion of language" (Eucken).

[1] The Welby Prize of £50 was awarded to this admirable essay by Dr. Ferdinand Tönnies of Hamburg (Editor, G. F. S.).

63. We will therefore direct our inquiry exclusively to the *causes* of that obscurity and confusion, so that we may then consider the means for improving such an undesirable state.

64. The essential causes will be contained partly in general obstacles, partly in the historical conditions upon which the position and activity of these sciences are based. But these are of many kinds. We must here represent them as they appear to us for the estimation of this causality in their sharpest form.

65. (1) But we must first maintain that not only at the present time, but long ago, these causes have been noted, and this condition lamented. Even if we disregard voices from antiquity, yet since the renewal of the sciences a whole series of prominent thinkers have pointed out the evils of an obscure terminology and investigated the causes. In the sixteenth and seventeenth centuries there prevailed among free thinkers the conviction that the whole traditional pursuit of philosophy at the universities—Scholastic—was worthless. It seemed to them that an empty science of words was taught; and that an elaborate terminology was a covering for ignorance and superstition. Technical words and subtle distinctions they despised. They declared their resolution of shaking off this whole inheritance, in order to penetrate immediately to things themselves. The book of nature alone was held worthy of reading; either they desired, like Bacon, to rise from particular experiences to generalisations, or like Galileo they declared that the book of nature was written in geometrical figures, and that who would understand it must learn the language of triangles and squares.

66. But the mathematical tendency far exceeded the inductive in content and influence; it founded modern philosophy. Now in so far as this tendency set before itself the scientific problem of explaining nature, was indeed primarily physics, it was really greatly aided by the elaborate sign-language of geometrical figures, of arithmetic, and soon also of algebra. The international understanding of the great theorems which hold the ground in that region still depends upon the instrument of mathematical formulæ. In later times again *Chemistry*, which is essentially grounded upon induction and experiment, has elaborated its own peculiar language of formulæ. But even that which in Physics and Chemistry goes beyond formulæ has from a terminological point of view caused little difficulty. This fortunate result is largely due to the fact that in the terminology no one has sought for novelties; and this again may be ascribed to the circum-

stance that notwithstanding the free exercise of abstraction, the things and processes upon which it is based lie open to observation and experiment, or if they are inferred are yet made highly probable. If we are unanimous as to the object of the idea or of the concept we are indifferent to the name, and willingly accept a traditional term, though it may have had another meaning formerly, since no one feels tempted to re-establish this meaning. Or we gratefully accept an expression coined by a master, even if it does not seem well chosen, in order to avoid a dispute about matters of taste. Thus we have essentially attained that which was desired by the bold prophets of modern times. Less trouble has been taken about theoretical logic, hence also about the principles of terminology. Together with Theology, its sister Metaphysic has been pushed into a corner whence they cannot disturb the investigators of Nature. Metaphysic, was regarded as that feigned wisdom issuing in "abstruse distinctions" and incomprehensible expressions, which together with Logic occupied the "pedantic" study of the "barbaric middle ages"—through Logic too it had been thought that something could be discovered about things themselves, which can after all only be got at by experience and calculation. This attitude of the modern natural sciences to the old pillars of Philosophy, points to the fact that the former have achieved complete independence and have become almost completely victorious; still there has not been wanting a development in Logic and Metaphysic themselves, nor yet an *extension* of scientific thought to spheres which are little or not at all accessible to Physics and Chemistry, but which are at any rate as near to philosophical interest. We need not wonder, then, that from that time when Mechanics seemed to lead right into the workshops of nature, resolute investigators have undertaken to apply the instrument to which this result was mainly attributed, partly to anticipatory generalisations, partly to the extension of the sphere of knowledge in general—the instrument that is, of the mathematical methods. Hence the energetic endeavour in the proud and strong seventeenth century to treat Psychology, Morals and Politics, as well as Physics, "more geometrico," *i.e.* to demonstrate. But wherein lay the strength of these methods? Opinion was unanimous as to that. It lay in an unbroken progress from ascertained starting-points; in other words, in the combination of undoubted and indubitable propositions into the proof of propositions which might otherwise be disputed. Some maintained the fundamental propositions to be pure

definitions, others held to the given form of mathematics, and thought that the absolute and highest method being impossible—for there are primitive words which cannot be defined—we must relinquish it, and be content to define all terms of which the meaning is not of itself clear and familiar (*cf.* Pascal). All were obliged to direct the keenest attention to terminology, and to attempt to lay the foundations which were held to be indispensable. There was a tendency to believe that most disputes between philosophical sects would *disappear* if only there were unanimity as to the meanings of words. It was assumed therefore—and daily experience taught it then as now—that many disputants never understand each other at all, and that many a one would come to terms with his opponent if he understood him, *i.e.* if he knew what thought he connected with his expressions: there could hardly be a difference of opinion concerning general *facts* and their nearest connexions, for an understanding which was purified from prejudices, and which depended upon the testimony of the senses and—some would add—upon *inner* perception (reflexion). The difficulty lay only in the fact that every one gives different names to these facts—that is in confusion of language. With more or less outspokenness, with more or less qualification, this was the view of the philosophers of the *Aufklärung:* Descartes, Hobbes, Spinoza, Pascal, and the logician of Port Royal, Locke, Leibniz, Berkeley, Condillac, Wolff, may be named here in a great symphony. Much rarer is the complaint that a *difference* of thought lies hidden under the same expressions. But several of these great authors did not think that the difficulty could be solved by definition alone; they doubted whether any natural language was suitable for scientific ends. The complaints, which were seconded by less famous names, may be easily referred to the three concepts under which the present treatise has considered the natural social will. They pointed out, (1) that names are given to things on the ground of defective knowledge, according to the impressions of imagination, according to *appearance;* (2) that the customary use of language is uncertain and inconsequent, that to a large extent it gives expression more to the contradictory feelings and interests of men than to harmonious insight and thoughts, (3) that ordinary speech, but also and especially philosophical terminology, is full of non-literal *figurative* expressions, whereby confusion and obscurity is exaggerated. The first complaint is directed especially against the classification of organisms. It was the more acute, because according to the

received, best authorised, doctrine the genera and species were held to be realities, in such a way that a real essence, denoted by the name, was common to all the individuals of this genus or species. In fact, the "Realism" of the schools, in the form in which it is generally understood, is closely connected with the view that between things and names there exists a natural and necessary bond; while the nominalistic, freer mode of thought apprehends phenomena in their nameless isolation, and claims the right to name them anew as it sees to be desirable. Practically that means, to distinguish them, to arrange them, to classify them, according to its own point of view, *i.e.* according to observation of the most constant and most characteristic attributes. It may seem that in this way an artificial systematism was favoured, because it alone seemed possible; yet the investigation itself necessarily elicited the thought of a *natural order*, of a classification, therefore, which took account of the really common attributes of every species, genus, and family of plants and animals. It is thus that the great French naturalists worked to establish the subordination and correlation of the organs. The recognition and discovery of an "architectural plan" of Nature, which was investigated in its complete unity and in its manifold ramifications, might indeed, if the old dispute had still survived, have appeared to be a victory for Realism, and has certainly worked in this direction through the doctrine of the "constancy" of species. But at the same time morphology led directly to the evolution theory, which seemed finally decisive in the opposite direction, hence in favour of the old Nominalism. Be that how it may, it may be said with certainty that the progress of the descriptive natural sciences, and in connexion with them, of Biology, has in this sphere overthrown those complaints. From the standpoint of every language—whether its names are derived from ancient science, or are as yet not separated from the popular view—all *modern* classifications of organisms are unnatural; *i.e.* they depend upon methodical study of inner relationship instead of upon naïve perceptions of outer resemblance. Thus they are developed from the rough into an infinite delicacy, and are full of *artificial names*, which indeed also produce a new confusion through the variety and conflict of systems. But this terminology, important as Biology is from a philosophical point of view, we will not consider further here as specifically philosophical.

67. The second complaint, on the other hand, maintains its full force to-day. It refers essentially and principally

to *moral* opinions and concepts. With respect to these, customary language has a characteristic function. Its connexions with natural feelings and habits, but also with popular beliefs and with valid norms of judgment, appear here most clearly. The current predicates which are applied to tendencies, actions, characters and men, belong to the words which express as sole significance, or include in their significance, an affirmation or negation—approval or disapproval—of the speaker. But to this subjective relation they give the form of an objective quality (as is also the case, according to the teaching of reformed physics, in a somewhat different sense, with sensations). Now though in many details scope is allowed for individual freedom, hence to doubt and conflict, yet the principles of moral thinking are so deeply embedded in language, that an offence against them is felt and negated not only as an infringement of customary language, but also and principally as a *moral* crime. The approval or disapproval which is open—*i.e.* made known through words or other signs—whether general or singular, of actions, principles, etc., is itself as an action the basis of *public* approval or disapproval, and whatever may issue therefrom. But the social will of this publicity by no means coincides with that which embodies itself in language and its usage. Of the former there are many kinds, the spheres of which do indeed in many ways cross the spheres of a customary use of language, and here and there coincide. but to a certain extent include it and to a certain extent are contained in it. Social ranks, classes, strata, callings, political bodies, corporations, parties, religious communities, sects, churches, artistic and scientific schools and tendencies—each such group has, at any rate in some particulars, its own judgments as to that which is to be called good or bad, praiseworthy or objectionable—to a large extent also as to that which is true or false. For this too involves affirmation and negation, and not alone because the true is sought and the false avoided, but because by the laws of human nature we generally *affirm* what is willed *as* true, and what is not willed *as* false. Every such group, if unanimous at all, is so concerning that which it *wills*—whether this is expressed in habits, or laws, in confessions of faith or of science; and this gives to each a special usage in the *application* of those affirming and negating names. Sometimes these names, even when they take the verbal form of qualities, are only intended to denote and announce the will, but sometimes they certainly claim to be really applicable to things, hence to be valid also as truths. Now philosophers

have often endeavoured to clear up this state of affairs, and to discover and establish *real grounds* for such naming. But as a matter of fact whole streams of those party-views and principles enter into philosophical systems, so that necessarily a great part of the lamented obscurity and confusion of terminology results from them. To a large extent the direct cause of this lies in the still existing dependence of these philosophical disciplines upon theology; while this itself is only an especially strong instance of the meaning which is attributed to such doctrines in general public life, *i.e.* by every social will. The doctrines themselves are only social will in a sublimated form. Modern society and the modern State have indeed in a certain degree an *interest* in the *scientific* elaboration even of this sphere, in proportion as they tear themselves free from traditional moral forces, and still more when opposed to them. In proportion again as a scientifically grounded conviction of cultivated men can be serviceable to peace and order within society and the State—to the natural content of the social will. Wherever that scientific elaboration has been energetically undertaken, then it has naturally had for its unanimous opponents almost all those interconflicting parties. Even society—at any rate in Europe—has seldom become so conscious of itself as to demand a pure and strict moral science. But the State tacks between old and new social forces; the more it makes use of the new as material supports, the more it believes that it can entrust its moral supports only to the old.

68. The third argument against ordinary language is also still in force. Language is full of metaphorical expressions. And indeed there is a remarkable interaction between the names for physical (objective) and psychical (subjective) processes. A poetical or mythological mode of thought—to which we have already referred—works through language by personifying things, and by expressing and explaining what happens as their free activities; on the other hand, by means of metaphors, the preponderating mass of psychical activities is materialised and therefore objectified, even by the habit of denoting a grammatical subject as "thing," while thinking of things as spatially extended or corporeal. Psychological terminology has to fight step by step with both these kinds of natural expression. It has already succeeded to a large extent in overcoming anthropomorphism, but uncertainties and relapses may yet be noticed everywhere. In the modern brilliant development of the psychology of sensations and ideas, a new and manifold application of figurative language

has taken place. Think for instance of the "blending," the "threshold of consciousness," etc., terms which we do not intend to question here. Much greater difficulties again in terminology are met with in the analysis of the feelings and will, in depicting which poetical and rhetorical language is triumphant. But all these difficulties are most closely connected with difficulties in the *matter*, to which a subsequent exposition will lead us.

69. (2) Among the historical causes of the observed phenomenon, as it presents itself at the present time, one is most prominent: the downfall of the European language of scholars, of neo-Latin. So long as we possessed this there was, even if only in the forms of words, a scientific terminology common to all; while at the same time there was an external distinction between the technical expressions of the learned, and the inconstant language of daily life, of poetry, etc. The Latin language was international as the language of the Church; from the Church it had spread itself abroad over old and new arts and sciences. The more these separated and liberated themselves from the Church, the more they became "national," that is primarily nothing else than belonging to a large community of written language, the formation of which they themselves promoted. As Latin was the language of the spiritual class, so the national language belonged to the lay nobility and to the bourgeois strata which stood beside it. But side by side with these social forces there rose up the natural sciences, and consequently the new philosophy. Meanwhile the official science lingered on with little deviation under the spiritual influence; the universities and schools remained faithful in essential matters to the Latin language until towards the end of the eighteenth century. The new philosophy was a realm of free-masters as opposed to the guilds. Of the brilliant names mentioned in § 66 only one belonged to the learned dignitaries, and this one (Christian Wolff) was driven from his chair at Halle in 1723 under threat of the halter. To these free-masters there may still be added (among others) Hartley, Priestley, Hume, Voltaire, Diderot, Helvetius, Rousseau; among the Germans we may mention, still from the seventeenth century, Tschirnhaus, and from the eighteenth Lessing and Herder. But the state of learning among the Germans distinguishes itself in a most remarkable way from that of the two other leading nations—after Galileo's trial Italy sank back into clericalism. While the German universities remained almost untouched by the new paradoxes until towards the end of the seventeenth century, there took place

on the eighteenth a rapid and determined appropriation and elaboration of rationalistic principles. That was a result of the system of competition and of the small courts. Characteristic of it was the reception of Wolff at Marburg; while such figures as that of *Chr. Thomasius* and *Nicol. Hieronymus Gundling* are only conceivable in the small state system of Germany at that time. In France it was the Revolution which first established a free university philosophy, the school of Condillac.

70. But from Germany had issued that many volumed *system* of the new world wisdom, dignified in the language of the learned, which combined to a certain point the antithesis of scholastic strictness of form and free rational content, the work of Chr. Wolff, who was later privy councillor of the Prussian king. For the first time this whole content was systematically subjected to a formed terminology, combined from new and old material, which could not but help powerfully to break down professional antagonism so far as it consisted in handing down the old content in the traditional dish. Without the predominance of the Wolffian philosophy at the universities we could understand neither the deep impression of the "illumination" upon the German bourgeois consciousness, nor the impetus partly due to it of poetic literature, nor again the transforming influence which the greatest thinker who issued from this state of things, Immanuel Kant, was able to attain as *professor* of philosophy. Kant, who recoined the terminology for his ends with the greatest freedom, still remained to a large extent dependent upon what he had received from the books of the Wolffians, as we may see from his habit of adding the Latin rendering in a parenthesis to the German term. But the common language of the republic of learning sank deeper than before into the background, in the nineteenth century which he introduced. The consequent disadvantages affect especially the smaller nations, and thereby indirectly the whole community, in that they hinder the development of capable minds in these smaller nations, and make it more difficult for their works to become known than it is for works in a more widely spread language, which expands a more general capacity of mutual understanding, and where the aid of translations can be more easily called in. On the other hand, smaller nations have indeed the advantage of being more or less *indifferent* to the writings of this larger language, of being able to suck the honey out of the blossoms, instead of being forced to make their way through the enormous production of worthless matter in each particular larger language, as the scholars

of each respective country must do. This is important also for terminology, for the less valuable the thoughts of a man, the less remunerative it is to trouble oneself with his technical expressions.

71. (3) If at one time the universities were accused—and with some truth—of a useless refinement of terminology which forgot realities over words, or at any rate over concepts; still we must look for the cause of the present dissolute condition to the *decline of the scholastic tradition* and the diminished position of philosophy in the instruction of scholars—at least in Germany. Concerning this last point we should read *Paulsen*. The general fact is connected most closely with the subject we have just been dealing with. For through its hostile attitude to the universities and through its exclusion from them, the new philosophy gained, as well as by its inner tendencies, an approximation to the common rational mode of thought or, as it is said, to sound human understanding—common sense—and at the same time to the free, critically reasoning, literature of the native language, which especially since it became periodical is characteristic of the age. The great arena of public opinion is substituted for the disputations in cloisters and halls of audience. Mutual understanding therein is already made more difficult by the unlimited remoteness of opponents, by the lack of personal acquaintance, by the vast number of contending voices. And though the written word can be better weighed than the spoken, yet the haste of production, the absence of any authority, of any visible judge, and the success of boldness, of catch-words, do much to disaccustom *literati* from precision of thought, from the careful choice of words, from conscientiousness in attacking an established terminology, especially when it is used by opponents. The very heads of the anti-scholastic philosophy spoke indeed about exact terminology, but only partially busied themselves about definitions; and here it was in the hottest opponents that the influence of tradition showed itself strongest. But, above all, simplicity was aimed at; a few and easily learned technical expressions, it was thought, must suffice. More and more there developed a philosophical popular literature, which spoke the language of courts, of *salons*, or of markets and public houses—a danger to exact and strict thought which John Locke, one of the heads of this popular philosophy, has noted with great force. "I confess," he says, at the close of a long chapter on the abuse of words, "in discourses, where we seek rather pleasure and delight, than information and improvement, such ornaments

as are borrowed from them can scarce pass for faults. But yet, if we would speak of things as they are, we must allow that all the art of rhetoric, besides order and clearness, all the artificial and figurative application of words eloquence hath invented, are for nothing else but to insinuate wrong ideas, move the passions, and thereby mislead the judgment; and so, indeed, are perfect cheats . . . and where truth and knowledge are concerned, cannot but be thought a great fault, either of the language or person that makes use of them." But in the preceding sentence he remarks, that "wit and fancy finds easier entertainment in the world than dry truth and real knowledge"; and this remains true to-day, notwithstanding the enormous progress of the sciences, especially in those spheres, which we do not seek to know for any practical utility, the utility of which we do not see, or which cannot even boast of any practical utility, at any rate for external ends. Psychology especially is the natural field for wit and imagination, and here instruction is reluctantly undertaken when it has to vie with entertainment. And yet an entertaining instruction is by no means to be despised; only it should be kept as sharply as possible distinct from the terminologically "dry," esoteric science. But the evil is to some extent inherent in the development. Bold thoughts, in emancipating themselves, break through old forms, fixed rules, stiff technical expressions, as a flame, consuming and illuminating, "wanders along its own path, the free daughter of nature". In Germany especially, in the second half of this century, there is repeated in an abbreviated form the spectacle which the new philosophy as a whole presented as opposed to scholasticism. A new University-philosophy had been established. We will pass over its history here. It culminated in *Hegel*, who spoke his own language, his "jargon" as his opponents mockingly called it. As University-philosophers, opposed to his autocracy, none but Beneke (who never attained an "ordinariat") and especially Herbart, formed their own schools. But then again there appears, with wider influence, a crowd of free-masters, who make an eloquent and unsparing attack upon the whole "speculative" philosophy, just as the moderns did upon scholasticism in general; but especially with complaints against the "incomprehensibility of the language". These are the more successful in winning over the public, because at the same time they pay their homage (with more or less reserve) to *natural science* which is once more breaking away from all philosophy, and because they are again approximating clearly to popular literature. The

names of Schopenhauer, Feuerbach, Büchner, Dühring, von Hartmann—perhaps we must now add Nietzsche—denote the common element in these tendencies. The new school tradition which had formed itself, although in divergent directions, has been quickly disintegrated. Concerning the result of the whole movement—of which naturally the last phase affects us most—for our present subject, we may hear the clear testimony of a thoughtful expert, which our own knowledge can only confirm. "Thus there appeared," says Eucken, "manifold systems and tendencies which side by side, or one after the other, asserted their power and predominance. But none succeeded in permanently maintaining its pre-eminence. This is manifest even in terminology. All these systems may be recognised in the terminology current in general scientific language, though in very different degrees (Hegel still predominates without question). There is indubitably present a certain syncretism, with all its defects and dangers. . . . In particular societies and sects, indeed, a strict observance is maintained in rejecting everything alien. But the terms of such sects are like small coins, which are not current outside their narrow sphere. . . . With us Germans, for instance, so much of a manifold and contradictory nature has been accumulated, that the technical philosophical language hardly continues to form a medium of understanding." Since this was written (about twenty years ago) external conditions have somewhat altered. The study of philosophy at the universities, after years of evanescence, has begun to revive; but now under a new character which the whole development has been preparing: "everywhere we are beginning to philosophise from the basis of the sciences" (Paulsen). But the sciences from which the most energetic and hopeful start is made are not, as in the sixteenth and seventeenth centuries, the natural sciences, but the mental sciences, which are drawing more closely together. Psychology and Sociology (which may also be called Social Psychology) form the centres, Biology constitutes the bridge between the two great spheres. But the improvement and influence of these sciences depends again upon the interaction of German thought with the thought of other languages. So far as universal (logico-speculative) philosophy is yet considered at all, there is no question that in this century German philosophy alone has won a rank for itself, and made its influence felt in all countries. It is different with the particular sciences and with that philosophy which would erect itself upon them. Here co-operation is manifold, though it may

unite only in the summits and branches; so that it is hard to estimate the relative share of any language in extending our knowledge. This co-operation has become especially fruitful where, as in Biology and Individual-psychology, it rests upon natural sciences which deal with matter of fact and are terminologically firmly established. International understanding finds here its limits. Meanwhile the psychology of the isolated sensations is more and more promoted by experimental methods and treated like a natural science (the way had long been prepared in the physics of the perceptible qualities), and it coins for itself at any rate a limited number of concepts, in such a way that they may be easily transferred into all languages and may yield the foundation of an identical terminology in this branch. The division of all psychical facts into sensations and feelings, although somewhat opposed to the spirit of the English language, seems likely to prevail; it is only a renewal, adapted to our present knowledge, of the old dichotomy *intellectus-voluntas:* the simple potentialities have been replaced by a number of acts.

72. (4) But in the differences of thought itself we have a powerful, and indeed internal, check to mutual understanding in words (hence a chief cause of the present state of affairs). In principle, the question whether in spite of differing principles, opinions, theories, a common terminology is possible, must be unconditionally answered in the affirmative. That is, indeed, the purpose for which a scientific "language" has always been prized and sought, to put an end to *senseless* and *fruitless* disputes about words, but not to thoughtful and fruitful disputes about things. But Kant was right in opposing the oft-repeated maxim "all disputes of the philosophical schools are to be regarded as *mere* verbal disputes". It is not alone that we find contrary instances, apparent agreements which consist only of words, which mean something different to every one; not alone that different *judgment* concerning things and processes takes shape even in technical expressions; but many disputes are empty because the object which A denotes by his term, and of which he states something, is altogether unknown to B, and because B again is neither willing nor able to know this object.

73. Eucken rightly points out how everywhere philosophical language is connected with philosophical thought itself. If we consider from this point of view the development from scholasticism and against it, what we first see is a great work of destruction. The simplification of terminology, to which

we have already referred, corresponds to a simplification of thought itself. The effort to attain this passes through the whole epoch, down to our own time. It finds satisfaction chiefly in the mechanical interpretation of corporeal things. Behind this lies the striving after technical *sway* over matter and the "natural forces". Where the mechanical explanation of processes is not adequate—in chemistry—more weight is given to the analysis of matter into ultimate elements and elementary units: analysis on behalf of synthesis. The whole tendency opposes man to all the rest of nature. Man *thinks* primarily and principally about matter and motion, the connexion and connexions of which he then learns, in order that he may then think of himself, *i.e.* may will, may make matter and motion serviceable to his ends. To matter and motion belong also the human body and its life; man learns about both for the sake of medicine. Everything is machinery; but in the human machine alone there dwells the thinking I, in an incomprehensible way, it is true, but able to direct partially this machine which is casually connected with him, and also to interfere with all the other mechanism. The thinking I, which is of quite another nature, yet subjects to its knowledge and will a dead matter which is alien and indifferent to it, even that of animals and plants. This idea, the necessity of which we sufficiently comprehend when we learn to understand it in its dependence upon actual historical development, has found its classical expression in the system of Descartes, which has formulated these principles in an almost perfect manner: the two opposite extremes which are always issuing anew from them, Phenomenalism (or Idealism, or whatever we may call this "theory of knowledge"—latterly even Realism) and Materialism (in its vulgar form) are only modifications in which the fundamental character repeats itself less clearly. It is Descartes also whose influence upon terminology has been most radically destructive and levelling; if others compete with him, there is yet no doubt that his *success* has been greatest in this respect. He was received into the schools—this is the inner meaning of Wolffianism—and though consequently thoughts and terms proceed again from simple to complex forms (as especially in the particular natural sciences), yet the strict rationalistic type maintains itself. Descartes gave the keynote of *clear and distinct concepts*, banishing all others. In its most important application, that to material nature, this means the exclusive validity of mechanical principles. But even in Physics and much more in Chemistry, this revolutionary claim meets with hot opposition, which is overcome

only in idea and hope; while in Biology it seems to break down altogether at first sight. The real aim of that claim was to put aside what could *only* be thought; clear and distinct thought holds by sensuous perception, while separating from it. It rejects its subjective factors, in order to present in greater purity its objective content—the extension of matter. But here there is no room left for anything which can *only* be thought; the parts of matter are real, and only change their place, *i.e.* their relative position, in motion. The possible is an object of thought alone, hence it seemed a matter of course to reject the possible from reality. In fact, to rationalism everything seems a matter of course, completely natural, which it desires, and it appears so also to itself; hence it rejects and mocks at the scholastic concepts as meaningless. Even the gravitation of the Newtonian physics was censured by the Cartesians as an occult quality, and the concept of chemical affinity was to its originator Boerhaave nothing more than a new expression for that "sympathy" between bodies or elements which is of such ill-fame to all moderns. To these concepts rationalism gives, at any rate provisionally, a mechanical interpretation. On the other hand it throws aside the concept of vital force altogether, together with all the specific forces of the organism derived from it. For a long time during the last generation it seemed triumphant here; it was accepted as an axiom that life could and must be explained only from otherwise known physical and chemical "forces". Now the concept of force itself is indeed only an object of thought; and this is true again of the differently formulated concept of energy which is latterly being substituted for it. But it is easy to satisfy the realistic claim by reducing all forces to the movements of atoms (invisible parts, as Herbert Spencer says), or by maintaining kinetic energy to be the fundamental form as opposed to all other forms, which are provisionally grouped together as "potential" energies. But a very marked reaction against the rationalistic-mechanical tendencies is just appearing. A vitalistic impulse is again disturbing the biologists; the accepted law of the conservation of energy, in its change of forms, is itself being *opposed* to the mechanical explanation, which as an "arbitrary hypothesis" is said to be "already given up"; while the search for mechanical equivalents, notwithstanding its famous success with regard to heat, is said to be hopeless with other forms of energy, such as electricity (Ostwald). This renewed opposition to the previous and persisting motive-force of natural scientific reason depends partly upon a just insight,

but partly upon a false assumption as to the aim and value of the whole mode of thought, an assumption which indeed has been defended most keenly by the most decided adherents to that thought. It depends upon a just insight, for the view that mechanical causality is completely "conceivable," that, in other words, the *necessity* of the law of persistence upon which it is based may be known *à priori*, is the last refuge of the fancy that the "universe" is and must be somehow "explainable," in the sense of the statement that it has been "created" by a God, *i.e.* by a spirit; behind the fancy lies the belief in magical effects. This view has been exposed most clearly and fundamentally by David Hume; but, long before, its refutation and subjugation had been contained in the deepest and most radical system of thought which was brought against Christian Aristotelianism, in the system of Spinoza. For Spinoza's proposition, ratio = causa, which is ordinarily interpreted as an expression of the most extreme opposition to Hume, of Rationalism in its strictest form, is really something quite different. What he means to say is, there is no "causa," no "real" and therefore "efficient" causes, there is nothing but "ground of knowledge"; but this is the necessary form of our thought, in so far as it forms universal concepts, in which particular concepts are contained, and from which they follow. Hence in this sense the universal concept, the common ground of knowledge or the "cause" of all phenomena, is that Infinite (*i.e.* that which cannot be expressed by any unit of quantity or number), which Spinoza defines as substance or nature, and which the natural science of to-day, differing only in the name, calls self-maintaining energy. But the opposition depends on the other hand upon a *false assumption;* the assumption that the reduction of the forms of energy to mechanical motion must, or indeed could, mean that by it mechanical motion would be established as the more real or as the only real. This is certainly the uncritical view of most naturalists. The real question can only be, whether an external world, consisting of like units (centres of force), which work mechanically upon each other and thereby change their mutual positions, is for our thought the ultimate numerator to which a mathematical interpretation of phenomena *must* refer all magnitudes and their changes, if it is to proceed consistently. This world is not comprehensible in the sense that we are able to see the effect of a direct impulse as necessary, but in the sense that *if* motion can be thought of as a quantity—as Galileo has taught us to think—*then* it is capable of

increase and decrease, and its changes can therefore be submitted to calculation. That this world which alone is present to thought and unified *by* our thought, is the only one which is there at all, or is in any sense more real than the world perceived and felt by our senses,—to assume this is a useless and unfounded addition to that "regulative idea," if we may introduce here that illuminating concept of Kant's in whose spirit this is thought. But that this most powerful idea should cease to regulate and to serve as guiding maxim is, if we may judge by the previous course of development, just as improbable as it would be undesirable for the progress of knowledge.

74. But the more we maintain and affirm this predominant significance of the mechanical principles, the more is it incumbent upon us, if we are to estimate their *absolute* value aright, to reflect critically upon their origin, and to assign limits to their use accordingly. To criticism the whole of this most fruitful line of thought must appear artificial, and every analysis of all reality, or of any reality which is regarded as independent, into self-subsistent "things" (substances) must appear as something *posited* by human will, or what is here the same, by human thought. Reality itself is so, especially the "external world," and things are for naïve thought (imagination) as active individuals within it. This naïve thought is, as it were, artificially extended by the reflective understanding; it peoples the world with efficient qualities, forces and souls. But then follows the scientific understanding, which desires to rule over the world and therefore to make it accountable; it negates the naïve thought and the reflexion which depends upon it; it strips the "world" of all that which makes things appear as essentially (qualitatively) different. In that which it allows to remain it finds what it has allowed to remain—matter and motion; these can be subjected to calculation in proportion as, after their apparently given connexions have been removed, they have been resolved into like units which are not further reducible, and which can be arbitrarily placed in new combinations by thought, or indeed by real activities. Now critical reflexion affirms (as we have said) that all separations are posited, and before or behind all, that of subject and object; what is "given" is only their unity and *in reality* (*realiter*, or as the schools would have said *formaliter*) their indissoluble connexion. And again, *after* the positing of an objective "external world" has been critically reproduced, it must be known and recognised anew as a whole, in its essential unity, even when it is torn away from *all*

subjects (not only from the thinker himself), and the withdrawal of all sensuous qualities is therefore as it were granted. The thought which is connected with intuition—or what is the same thing, pure experience—must also correct with energy the mathematical understanding. It says to it, as it were, "You see in the world nothing but similar processes, which repeat themselves from eternity according to the rules which you call natural laws; you see in it nothing but discrete atoms, which combine and part, attract and repel each other; these views of yours are very useful and so far correct; but if you will only forget all your plans and purposes you will allow that you know your matter only as a continuum, and that you as well as I are forced to posit its magnitude or extension as infinite, and therefore as defying all measurement; further you must allow that in experience there are no completely similar events; and that the existence of the universe is given to us only as *one single* process, which we can compare *as a whole* with no other. You believe that the constantly repeated revolution of the planets around their axes and around the sun were ordained from all eternity and would endure to all eternity; but with your own resources we have found that the genesis of these planets and of the sun from the undistinguished unity of glowing masses of gas is a unique event, which we may indeed explain in detail by the known laws of nature, but cannot derive as a total effect from some total antecedent cause, because it points back to unascertainable earlier world-processes *in infinitum*. In the same way the cooling of the crust of the earth and the development of organic life upon it are events which have nothing like them, and which cannot therefore be understood in the same way as events which repeat themselves similarly under sufficiently like conditions, or can even be reproduced artificially at pleasure. If the transformations of energy in the universe tend predominantly to the production of heat, while heat always passes over from warmer to cooler bodies and so tends to distribute itself equally, if then *entropie* strives to a maximum and the total state to the cessation of kinetic energy, as of all forms of energy except heat,—we must accept this predictable history of the universe, like its past history, as a simple fact, the explanation of which is nothing more than its differently expressed description."

75. We see in fact, throughout the whole of the present century, how investigation and reflexion combine in a criticism of the mechanical Rationalism, which leaves it untouched in a higher thought; though that criticism

oftener enters into phenomena as pure negation without understanding. In its right understanding it is a necessary evolution of the Rationalism which knows itself and the limits of its own power. Its progress within objective natural science is marked by the deeper study of the processes of *life*. But as philosophical inferences, in which it describes its curves, the following demand recognition: (1) The existence for a deductive thought of the infinite previous to the finite, which enables us also to think of unity before the manifold, of the universal before the particular, of the whole before its parts. (2) The predominance and victory

	Motion		Rest
of the ideas	Change	over the ideas	Identity
	Becoming		Being.

For rationalistic thought the victorious ideas are indeed indispensable; but they are conceived of as being added from without. The state of rest, etc., is the natural, as in a constructed machine, say in a clock which has not yet been wound up, a comparison which is used by almost all these thinkers. The impulse must be given to matter from without, since every part receives it from another; here the system demands its *Deus* as the originator of motion, of change, of becoming. The other mode of thought, which we may begin by regarding as the empirical, accepts matter in motion as the fact of facts, and does not trouble itself about the old concept according to which motion does not belong to the "essence" of matter. Impenetrable atoms and their appropriate empty spaces are for it only auxiliary ideas, however necessary they may be for rational thought. Here lies also the point where the doctrine of the conservation and transformation of energy breaks the old form of the mechanical system. (3) As in the conservative system of the universe the total amount of energy maintains itself while its forms continually change, so the totality of a living organism maintains itself as the persistence of the relations of its parts throughout the continuous change of the parts. Life is at the same time reproduction and destruction; it exists, therefore, together with the tendency to its opposite, for which reason Bichat defines it as the fight against death, and another French physiologist, Claude Bernard, ventures upon the dialectical proposition "La vie c'est la mort". (4) Thus the reality of every moment or any limited portion of time, carries in it as its negation the real possibility, inclination, tendency, disposition, power or capability, or whatever we may call it, to all following moments; possibility is therefore in no way an object of thought alone, but it is reality itself

in its necessary relation to time, *i.e.* to activity, performance, completion. It must be noted most carefully, how here the regenerated Aristotelian concepts meet with the concepts of modern physics. For what is energy, which is now accosted as the true reality, but *capacity*, inclination, tendency (or whatever it is called) to perform work?

76. But this whole renewal of thought is of the deepest importance for *Psychology*. Critical (or empirical, or positive) reflexion has for its chief result, that there is no ground in the given facts for the separation of subject and object. The Cartesian view, that a subject is connected only with the human body and then as a miracle, is definitely abolished by the theory of evolution. However radically it may be opposed to tradition and to naïve opinion, that view is nevertheless a remnant of the old belief that the soul has its seat in the body as another being; a belief which was much refined in Aristotelianism, but in the Christian scholasticism, at any rate for the *anima rationalis*, was reduced again to its vulgar form. For Descartes, as for his predecessors, the soul perceives movements of the body and reacts upon them. The actual facts are sufficiently described by saying that the body perceives itself and reacts upon itself, *i.e.* as a whole upon its parts. We may give the body, so far as it is subject, *i.e.* psychical fact, the traditional name of "soul". Body and soul are then different names of one and the same object, which as body is perceptible in its parts, but as whole, *i.e.* as persistent relations of the parts (what the Aristotelians called form) is, like the soul, an object of thought alone.

77. Between Descartes as Intellectualist (regarding the soul as independent of all experience) and his sensationalist opponents (Gassendi, Hobbes, Locke, Condillac) there is from the present point of view no essential difference. The latter also retain the soul as another being, but treat it still more as something passive, because they think that they can sufficiently explain sensations by the effects of "impressions" of external objects, and rightly derive thought—as a process of memory—from complications of persistent sensations. This view has transplanted itself into the whole of the modern Association-Psychology, which, in connexion with the Physiology of the nervous system, has resolved so great a part of the facts of knowledge into its atoms (with which *Carus* compares the isolated sensations) and has synthetically reconstructed them. But the philosophers of this tendency, especially the Herbartians, return quite consistently to the soul as a simple being, as something which must correspond to the grammatical and logical (*i.e.* denoted by a name)

subject. But the obstacles to this thought are the feelings, especially that complex of sensations combined with feelings to which we give the name of will.

78. Unprejudiced self-knowledge now allies itself with the doctrine of descent to posit feeling as identical with the fact of life, and consequently as the constant and original element which is common to all living beings. Vital feelings are feelings of activity, and the apparently simple fact of the reflex action of human sense-organs to external stimulus is really the feeling of a most complicated and late-developed activity. It is not our business here to follow this Psychology into its consequences. All that we need to do, is to emphasise that a *terminology*, which adheres to its principles, is in confusion and conflict with a terminology which refers essentially to the simplicity of the soul-substance, and partly to its passive, partly to its human-rational nature. It is characteristic of the difficulty with which the biological point of view makes its way, that even the psychologists who have made most progress in this respect continue (1) to begin with the psychology of the senses, (2) to represent, or at any rate to treat, human psychology as universal psychology.

79. Connected with this, moreover, is the obstinate persistence of the view that intelligence belongs to the essence of the soul, a view held to be so certain by one of the most able investigators that he represents the willed adaptation of means to ends as the criterion of psychical facts in general (James). Finally, the confusion which often lies hidden in the terms consciousness, unconscious, subconscious, may be largely ascribed to the circumstance that the concept of consciousness is derived from human thought, but because thought is taken for the essence of the human soul, therefore "consciousness" is sometimes a state which can only be mediated by thought,—as a rule by the recollection of words, sometimes simply psychical facts in so far as they are present. But because their presence is again thought of in analogy with thoughts, or at any rate with their elements (sensations and ideas), therefore the necessary concepts of involution and evolution, of growth and differentiation, of all those processes which denote psychical life just as they do physical life, do *not* get their appropriate validity and naming.

80. It is chiefly the doctrine of the will which suffers from this, as from the dependence of terminology upon customary language. If we take as our basis the concept of the vital feeling, and of the manifold organic feelings of activity into

which it develops in the animal along with the organism itself, then this, like life in all its phenomena, is twofold: assimilative and casting aside, receptive and repellent, affirming and negating. Now among the vital activities of animal beings those of the nervous system in their original unity with those of the muscular system, are altogether characteristic, as supporting the motor changes effected by external stimuli. The unity of the vital feeling in a corresponding way separates into the similar feelings of motor activity, and into the more strongly modified and infinitely manifold feelings of reaction to external stimuli—the sensations. This animal differentiation does not coincide with the original vegetative differentiation, although allied to it. But this repeats itself in a most marked manner with the higher development of the sensations; a psychical organism within the soul, like the cerebrum within the body, is formed as a complex tissue of possible and actual connexions of sensations, a tissue of which the essential functions are the positing of likeness and difference, *i.e.* are assimilation and separation, reception and rejection, affirmation and negation, completing itself in man by the possession of a sign-system of words as the function of judgment, and so as thought. Now we have the word "Will". It means, the idea (A) of something active (grammatical subject); (B) of something "passive" (grammatical object). As A the idea is, (i.) equal to the idea of the soul in general; (ii.) equal to it in so far as it is thought of as working outwards, in opposition to the intellect as the soul receiving from without; (iii.) specifically as ruling, commanding, guiding, causing, movements of the body. As B, it is something thought, a thought or a complex of thoughts. While therefore the idea A is applicable everywhere where a body is thought to have a soul in it, hence at least in all animal organisms, the idea B is applicable only to men. But these ideas are confused together. Like the soul in general, the will is sometimes used as equivalent to the intelligence, or defined as something intelligent; then there arises in contrast with intelligent thought the concept of intelligent "instinct," instinct "guides" the animal, instinct "tells" him, "teaches" him, etc. On the other hand, as product of the thinking I the will becomes as it were its instrument, by means of which it issues and fulfils its orders; it is then very easily simply identified with the thinking I, is therefore its own object, and this corresponds best to the feeling and the idea of the "free" will. But as subject or as object, the idea which the word is meant to express always has a reference

to the future, to a becoming, hence simply to a happening; but it can without difficulty be generalised and refer also to the existent; the common element is then the affirmation and—in the opposite sense—the negation of a state or of a change. Hereby it becomes identical with the feeling of pleasure and pain; but these are indissolubly connected with desire and dislike, hope and fear, in short with all positive and negative "wishes," which are again conditioned by sensation, idea, thought of a future state. Thus, if we follow language, Will may be identified with or distinguished from, all particular and connected sensations and thoughts; it may be conceived of as something quite illogical, unmediated (as actual "caprice" or fancy), but also on the other hand as a strictly logical, systematic structure.

81. Physiologists and Psychologists are always tormenting themselves with new investigations as to what it really is, but find again that "Desire, wish, will, are states of mind which every one knows, and which no definition can make plainer" (James). But then they are distinguished: (1) "We desire to feel, to have, to do, all sort of things which at the moment are not felt, had, or done; (2) if with the desire there goes a sense that attainment is not possible, we simply *wish;* but (3) if we believe that the end (attainment) is in our power, we *will* that the desired feeling, having or doing shall be real". We really have here an arbitrary limitation of customary language which would perhaps be not to blame if the author remained true to it; but after a very thorough investigation he finds that the effort of attention is the essential phenomenon of the will, and thinks that every reader must know that it is so from his own experience. The first limitation still includes every "spontaneous" beginning of movement of the body, hence also those "involuntary" ones which follow immediately upon sensation or idea; the others expressly make "stable" thought, held with exertion the condition of the will; here only the "voluntary" activities of *human beings* are thought of. *Wundt* too has previously declared that "the will can be defined as little as consciousness"; but then he took "apperception" or the "inner volitional activity which is given from the first with consciousness" as the decisive and alone sufficient characteristic of the concept, and from it he derived the "external" act of will as "apperception of a motor idea". In his later (small) *Psychologie* he regards the process of will in quite a different way, defining it as an affection (a connected course of feeling of a uniform character) together

with the ultimate end issuing from it of a sudden change of the idea- and feeling-content. Finally in the deep expositions of his *System* he takes the will in a sense which is expressly based upon parallelism, or indeed upon identity of body and soul; it becomes the psychical content of life, sometimes distinguished as the "pure will," a "transcendental soul-concept, which empirical Psychology demands as the ultimate ground of the unity of psychical processes, but of which it can make absolutely no use for its purposes". "If it would gain from it a soul-concept useful for the empirical derivation of the facts of inner experience, it must forthwith extend it into a composite unity including the possibility of a plurality of presentative activities." For the most part the physiologists adhere to a concept of the will, which makes it, after the fashion of the Cartesian soul, a rational person within the body; they like to represent it as telegraphing and issuing orders. But some, like Huxley, are consistent and materialistic enough to think of *all* animal, hence also human, activities as "automatic," and of *all* "phenomena of consciousness" as mere by-products of the vital process, reacting in no way upon it. They differ from the Identity-psychology only in the obstinately maintained prejudice that only the objective or physical is "real"—*i.e.* they differ fundamentally only in *terminology;* for no one has ever been able to say in what particular sense the former has a *right* to be called real, while the psychical "accompaniment" has not. We regard Wundt's latest exposition, together with its terminology, as very fruitful; but even Wundt has not yet given us a psychology which develops and derives the particular and most particular human wills from the universal and pure will, according to the given programme. Even for Wundt the name remains *previous* to the concept, or at any rate simultaneous with it. But it is for ever in vain to hunt after that which the will really *is*. To obtain a fundamental view of the facts, that is the only important task; and that indeed is made very difficult by the fact that we can express them only in words which already mean something else. But we might try to avoid such words, to form the concept entirely from words *already defined*, and then to assign to it the abbreviating name, *e.g.* "Will". It is in this way that we have endeavoured—though anticipating concepts—to determine as the human individual will that combination of ideas which is in any way "positing" (*quasi* legislative) for, or "effects," subsequent ideas and combinations of ideas, we may now say, which contain them in it as possible; it may be that it completes and exhausts

itself (or its "effect") in a single "action," or that it forms the *rule* of repeated similar activities—*i.e.* of the feelings of activities. All that we maintain is, the value of this *concept* for the understanding of undoubted facts, *e.g.* of the fact that for every one something becomes the sign or mark of something else, without being it by nature. The *name* is, in and for itself, completely indifferent; we think indeed that it extracts as it were the quintessence from everything which is ever thought of as human-rational will; for this much is common to all those ideas: something affirming itself, affirming or denying other feelings and ideas. It is this again upon which the relation of every particular will to others is based; and again a concept is necessary which expresses the unity of several wills, as affirming itself and affirming or denying its members. This we called "social will". In it, it became obvious and clear that will, or whatever we may call the psychical power, is only apparently the "cause" of bodily movements, that it is nothing but power over its like—ideas and feelings. But the relation of the individual will to itself and to the body belonging to it is nothing other. This is difficult, but not impossible to think. It must be learned and practised.

(To be concluded.)

IV.—THE SPATIAL HARMONY OF TOUCH AND SIGHT.

By G. M. Stratton.

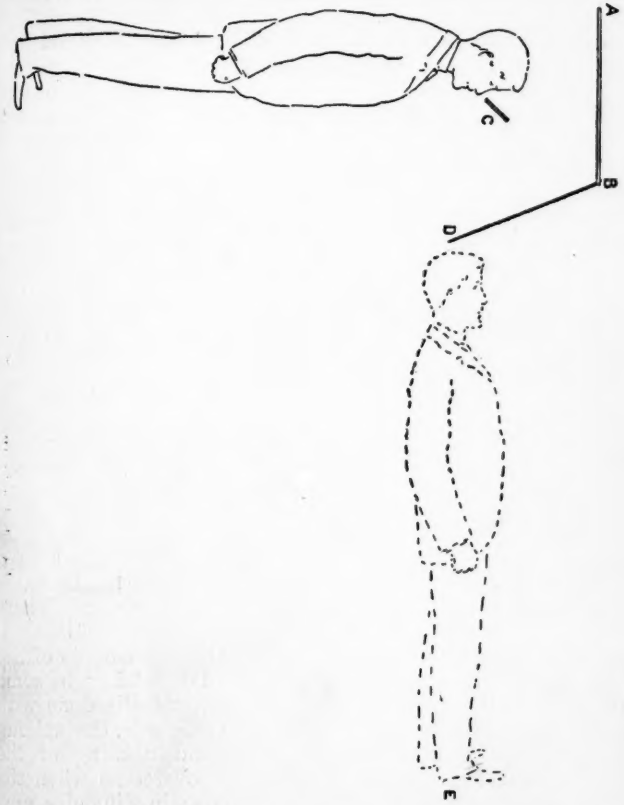
The more recent investigation concerning touch and sight seems to indicate that the place in which any part of the body is persistently seen influences the localisation of the dermal and kindred sensations arising in that part. If one were to see his feet, for instance, in some direction different from their present visual position, he would in the end refer thither their kinæsthetic impressions also. This much, it seems to me, was implied in the results of my experiments on inverted vision, reported not long ago.[1]

It has since occurred to me that the more general inference then drawn—namely, that any position in the field of view could, under suitable conditions, be felt as identical with any tactual position whatever—was not fully justified experimentally until one took into account a factor with which my experiments at that time were not concerned. For the conditions of the experiments were such that visual objects were thrown into new directions, while their apparent distances from the observer remained unchanged. Strictly speaking, then, the results showed how tactual localisation is affected by disturbance of the normal visual *directions* merely, and indicated that sensations of touch and movement may come to be referred to an entirely new direction in sight, but not necessarily to an entirely new *distance* as well. In other words, the experiments showed at most that a discord between touch and sight which was a mere matter of direction would necessarily be transitory; but no direct evidence had been gained as to the possibility of harmonising these senses when the discord involved both direction and distance.

An experiment was accordingly tried as to the effect of introducing this additional element. A mirror (AB in the

[1] *Psychological Review*, vol. iii. (1896), p. 611, and iv. (1897), pp. 341, 463.

diagram) was supported horizontally and face downward over my head; and below this, and before the eyes, a small mirror (C) was fixed face upward but slanting at an angle of about 45°. The mirror overhead thus imaged the person as seen from above, and this image was in turn reflected in



the mirror C, so that the observer saw his own figure projected in front of him, approximately in the position DE. A light portable frame, consisting mainly of two upright supports, held the mirrors in fixed relation to each other,[1]

[1] The following details are given, in case any one is interested in the measurements of the apparatus: mirror AB, 20 in. × 24 in., longer

and was bound to my shoulders and waist so that I could walk freely about and use my hands. My head moved independently of the mirrors and was unencumbered save by a small dark guard of paper about my eyes, which kept me from seeing the mirror above or the scene on either side, or my body except as reflected in the small mirror before me. So much of the view in front as might not have been shut out by this mirror itself, was cut off by a slanting screen of dark cloth (BD) attached to the upper mirror and extending a distance along the sides. The angle and elevation of the small mirror, moreover, were such as would allow me to see no direct reflexion of my face or head, but only the reflexion of them in this small mirror received with the rest of the body from the mirror above. This double or successive mirroring which the scene underwent of course compensated the usual reversal of right and left which we have when looking at ourselves in a glass, and gave the scene in its true relations.

The observer was thus enabled to watch himself from a point of view apparently above his own head. The field of view included the entire body and a limited region around, so that one could move and act with some perception of the immediate surroundings.

The experiment lasted from 3·20 P.M. until 9·30 P.M. of the first day; from 9 A.M. until 7·30 P.M. of the next day; and from 9·45 A.M. until 5·15 P.M. of the third day;—a net time of a little over twenty-four hours. Between these periods the eyes were of course securely blindfolded.

In general it was soon evident that in spite of the altered conditions the experience was running much the same course as during the experiments on inverted vision. There was slight dizziness at first, some tendency to loss of balance, and it was difficult to direct visually the movements of my feet or hands. But by the third day, although some fumbling still occurred, movements were usually done with comparative freedom and precision. There was, throughout, little of the general bewilderment, and nothing of the confusion of right and left so hard to overcome when the field of view was upside down. The main difficulty now was not that movements were started in the wrong direction, but rather that I had no instinctive feeling as to what visual distances were within effective range of my limbs. Things

diameter running forward and back; mirror C, 4 in. square; distance of mirror AB above top of head, 10 in.; distance between AB and centre of C, about 11½ in.; the top of the observer's head consequently seemed projected about two feet in front.

that were well within reach seemed hopelessly remote, until a deliberate comparison of their positions with that of my visible hand made clear the error. And when things in sight came in contact with some part of my body, the touch-perception, by seeming suddenly to bring the objects nearer, showed that by sight alone their distance had been considerably overestimated.

This indicated that, with regard to things other than my body, the position in which they were actually seen was very early accepted as their real position; there was no translating their new situations into the terms of the older, normal, visual experience, except when touch introduced a discordant report. In the case of the body itself, however, whose visible aspect was of course uninterruptedly accompanied by sensations of touch, there was a much less ready acceptance of the sight-impression as final and real. The visual projection remained for some time a mere reflexion or displaced image of the reality which was still thought of as lying in its normal position. But as time wore on, this older, normal representation became less persistent and vivid; it was often found to be blurred and to require an instant's mental withdrawal from the actual scene before I could recall it in its original vigour. The actual sight of my body, on the other hand, had constantly to be heeded in visually guiding any action; so that it had thrust upon it an immediate practical importance which the older representation could hardly maintain. But not until the afternoon of the second day did I notice anything like an acknowledgment of this reflected image as my very body itself. On the third day such an attitude was more frequent. But even to the end I usually had only to shut my eyes to cause the older mental picture to surge back and drive from the field all but some faded remnant of the new perceptions. At times, however, even with closed eyes, I involuntarily thought of my body as in the position just seen.

This growing recognition of the projected image of my body as the real body was accompanied and doubtless aided by a waning opposition of the reports of touch and sight. Even on the second day, impressions of touch occasionally suggested no other place than the one indicated by sight. And again on the third day I sometimes found myself handling things in sight without any conscious opposition in the localisation of the different impressions: the touch sensations were not referred to any other than their visible locality. But the most frequent and striking

examples of such harmony were found, as in the case of inverted vision, during the more rapid and inclusive bodily movements, especially that of walking. Under these circumstances, on the second day, I sometimes felt myself strangely tall, as if my body had been elongated into accord somewhat, with the apparent distance between the ground and my point of view. As yet, however, the tactual sensations in my legs hardly seemed as far away as their visual counterparts. The impressions of sight and touch were apparently referred to the same general direction, but as though the touch-sensations had been attracted toward the visual, without attaining absolute coincidence. There seemed to be little or no corresponding attraction of my head and shoulders. In walking I felt as though I were moving along above the shoulders of the figure below me, although this too was part of myself,—as if I were both Sinbad and the Old Man of the Sea. The next day, during a rapid walk with some one guiding me, I had several vivid impressions of a more general harmony of touch and sight, best when the impressions were more or less passively received without searching to detect nice differences of localisation. If I carefully noticed whether my body seemed to be in its older place, this older localisation could always be felt. But in the more languidly receptive attitude during my walk, I had the feeling that I was mentally outside my own body. It was, of course, but a passing impression, but it came several times and was vivid while it lasted. But the moment critical interest arose, the simplicity of the state was gone, and my visible actions were accompanied by a kind of wraith of themselves in the older visual terms.

The harmony of touch and sight in the case of my feet and the lower part of my legs was hardly so easily disturbed. Even when I gave careful attention to them during a rapid walk, I had often no consciousness of any different localisation from that reported by sight; they only seemed strangely projected and far away. After these, the most ready union of touch and sight under the new conditions occurred in the region of my hands. My head and shoulders, on the contrary, were far less tractable, as in the experiment with the inverting lenses; and yet in the present experiment they were as much in sight as any part of my body; so that I cannot any longer attribute the slower development of the harmony in their case to the mere fact that they were less frequently seen under the abnormal condition. It now seems evident that in addition to having the part perceptible by both touch and sight, it is important that the occurrence

of a tactual sensation should be regularly signalised by some striking occurrence in the visual field, and *vice versâ*. The simultaneous outcrop of the two disparate impressions brings about an association between them, so that each comes to mean the other much more rapidly than if the tactual or internal sensations occurred without any marked change in the visual experience. The dermal and internal sensations arising from the head and chest are accompanied by visual changes which are less striking than those associated with the kinæsthetic variations in the feet and hands. The act of swinging the leg and planting the foot, of moving the arm and grasping, gives a lively impression for both sight and the motor-tactual sense. And these changes are, besides, more interesting and invite a more attentive supervision than do the movements of circulation and breathing and directing the eyes. What visible appearance there is of these latter movements generally passes with less heed; and a longer time is consequently required to develop intimate connexions and instinctive cross-references between touch and sight than in the case of the legs and arms.

As to the feeling of the directions up, down, and level, there was at first an utter rejection of the directions suggested by the view, then an occasional confusion—for example, as I stood by a table handling something upon it, I seemed to be looking *down* on my hands and yet at the same time looking out horizontally (which was the actual fact)—and finally cases where the apparent plane of the ground was accepted as the true level, and my body was felt as upright upon it. More frequently, perhaps, there was a compromise, in that the new visual directions were not accepted, as final and yet I could not bring myself to feel that the true level was as different from the visible plane of the ground as I knew it must be. But even when for a time the apparent plane was accepted and things near by, but at the moment out of view, were represented in spatial accord with what I saw, more remote objects that had not been seen during the experiment refused to come into the new system and stood stubbornly on their old plane.

The whole experience was thus so similar to the one with the inverting lenses that I hesitate to present it even in this brief outline. But under the circumstances the very similarity is a distinct addition to the data from the previous experiment, since it shows that the introduction of the new factor—that of distance—does not prevent an ultimate spatial concord. In such brief trials as this, one must of course hope only for some indications of the course the

experience would run in a much longer lapse of time; and such indications were clearly given, it seems to me, in the gradually increasing frequency with which localisations initially discordant were accepted as identical, and in a gradual enlargement of the areas within which such equivalences were felt. With this tendency apparent, it seems merely a question of time when the identifications would become presistent rather than occasional, and all-embracing instead of local and limited. The experiment thus suggests that the principle stated in an earlier paper—that in the end we would feel a thing to be wherever we constantly saw it—can be justified in a wider sense than I then intended it to be taken. I had in mind only those conflicts of place which arise from difference of position on the retina and which come to us psychically as difference of direction in the visual field. We may now, I think, safely include differences of distance as well, and assert that the spatial coincidence of touch and sight does not require that an object in a given tactual position should appear visually in any particular direction or at any particular distance. In whatever place the tactual impression's visual counterpart regularly appeared, this would eventually seem the only appropriate place for it to appear in.[1] If we were always to see our bodies a hundred yards away, we would probably also feel them there. All that is necessary is perfect uniformity, so that the sight of a thing may come to be unhesitatingly and unambiguously translated into touch-experience, and *vice versâ*.

The results may therefore be considered an additional obstacle to any theory of the interconnexion of the senses which assumes that their harmony requires an identical location of their images in external space, supposing this to have some intelligible meaning. The harmony evidently can occur when a literal superposition of the different perceptions is out of the question; so that any adequate view must provide for this astonishing disregard our minds display of absolute locality. The simplest explanation seems to me to be that a correspondence, point by point,

[1] Provided, of course, that the rest of the visual experience harmonised with this; *i.e.*, had the same relation to the given visual impression that the mass of the tactual experience bore to the given tactual impression. I do not imagine, for instance, that there would be harmony between touch and sight if with our present somatic sensations we constantly saw our head between our feet and the ground. Here the incongruity would not be that our head appeared at that particular distance or direction in the visual field, but because the relation among objects as reported by sight did not agree with their interrelations as reported by touch.

between touch and sight, is built up associationally; and only by actual experience does a person learn what visual position corresponds to any given tactual position.[1] As far as the actual feeling of appropriateness is concerned, any other visual position would do quite as well; but the association once established, a definite visual expectation is aroused by each tactile impression, and an appearance in any other than this anticipated locality seems distinctly incongruous. We have come to expect to see the object just *there*, and if we really see it elsewhere, we feel that sight has ceased to accord with touch, whereas, in truth, sight has merely ceased to accord with what its own previous reports had led us to expect. Since the definite direction which the expectation takes is due merely to the course of our previous experience, the actual harmony may come about under the most varied conditions—under any, in fact, which permit the growth of expectation and of an experience which constantly meets the suggestions thus aroused.

This view of the case makes room for our normal experience and for the results of experiments like that here reported; but some might feel that it is contradicted by evidence gained from persons cured of blindness. For if the harmony between touch and sight is a matter of smooth and rapid cross-reading from one sense to the other, gained by noting the location of simultaneous changes in the two sensory fields, a mind just entering on visual experience ought to be unable to translate visual positions into tactual, and the reverse. He must by actual trial learn what movements are necessary to bring his hand to a given visual place, by watching his hand (after recognising it by sight) and inhibiting those movements which are seen to carry its image away from the selected visual region, and continuing those movements which bring the image nearer its goal. But accurate off-hand pointing and grasping, under guidance of sight alone, would be impossible.

Yet there are statements in certain reports of operations for cataract which might well be adduced in proof of an immediate muscular appreciation of visual direction. Ware, for example, relates that his patient, a child of seven years, recognised as a square piece of paper a letter held before him, and said that it was longer in one direction than in the other. "On being desired to point to the corners, he did it with

[1] For a more detailed presentation of this as an associational correspondence of local signs, see *The Psychological Review*, Sept., 1897, p. 472 *et seq.*

great precision and readily carried his finger in the line of its longest diameter."[1] One must remember, however, that in this case the child seems to have had normal vision until toward the end of the first year, and he could always distinguish colours. A more careful examination might perhaps have shown some vague consciousness of position as well.

In the account Wardrop gives[2] of a lady operated on for cataract probably congenital, some of the statements certainly give the impression of considerable freedom in the visual control of movements, although it is not actually asserted that these went rapidly to the mark. On the evening of the day of the operation, she pointed out to her brother the hands of his watch as well as different figures on its dial. On the third day she "playfully pulled away" a handkerchief with which he had covered his face, and on the ninth day she pointed out correctly a "ticket" in a window across the street. These things were evidently reported to Wardrop by her brother and are not given from Wardrop's own observation. For when he speaks from his personal knowledge we find that some eighteen days after the operation, in describing some experiments on her, he says: "It may here be mentioned that when desirous of examining an object, she had considerable difficulty in directing her eye to it, and finding out its position, moving her hands as well as her eye in various directions, as a person when blind-folded or in the dark gropes with his hands for what he wishes to touch". This certainly implies that visual position in her case did not convey an immediate tactual meaning, and that the acts of which her brother tells must have been slower and more laboured than the narrative at that point suggests. The more critical physician saw things in a somewhat different light.

In the case of Noé M. reported by Dr. Dufour,[3] certain isolated phases of the testimony might likewise indicate a direct muscular appreciation of visual place. Thus, after some experiments, the patient is told to go to his room. Although his eyes are open, he immediately stretches out his hands and advances cautiously. Dufour stops him and says "'Hands down. Don't you see a shining yellow thing down there?' 'Yes.' 'Well, that's the door-latch; walk in that

[1] *Philosophical Transactions*, 1801, p. 386.

[2] *Ibid.*, 1826, parts 2 and 3, p. 529.

[3] *Guérison d'un aveugle-né*, Lausanne, 1876, quoted at length by Dunan, "L'espace visuel et l'espace tactile," *Revue philosophique*, xxv., 376. A somewhat similar case is that of Johann Ruben reported in the *Zeitschrift für Psychologie*, ii., 51; the pointing and grasping here were occasionally correct, although in general quite astray.

direction, and when you are there stretch out your hand.' The patient walks readily in the direction of the door, stops two steps short and directs his hand without much accuracy, and yet with evident purpose, off to one side of the brass handle, which he finally finds after groping around it." The groping is exactly what the view above presented would lead us to expect, and the only difficulty is in his starting off in the direction of the door as if the sight of the handle immediately showed him in what direction to move. The experiment seems to have been so loosely conducted that it really gives little evidence whether vision really had much to do with the movement in this instance. The physician's sternness might account for the "*facilité*" with which the poor peasant started off, and the direction of the door was gained perhaps from other than visual clues.

But it must not be supposed that the temptation to explain away evidence of this kind (I have given all the damaging testimony I could find[1]) is merely because it conflicts with some pet theory. It really conflicts most of all with the weight of evidence in just such cases. Where the experiments seem to have been most critically conducted and reported, the results are unambiguous, and show that visually guided movements are always cautious and tentative.

Franz, for instance, who seems to have been very careful and exact, and who had an unusually intelligent subject for his experiments—a young gentleman with cataracts from birth—obtained results exclusively of this sort. Several days after the operation the patient was shown a piece

[1] Perhaps some reference ought to be made to the oft-cited testimony of Cheselden's patient (*Philosophical Transactions*, 1728) and, later, of Home's first patient (*ibid.*, 1807), that the things they saw seemed to touch their eyes; which some might think implied an immediate and definite (even if we say erroneous) tactual localisation of visual impressions. Both of these patients were greatly distressed by the light, and this sense of distress—from the watery suffusion, the muscular spasms, and the pain in the eye-ball—was doubtless the same as if something were actually touching their eyes. But their naïve remark need not be taken as if they were psychologists and distinguished the pure light impression from its violent organic accompaniments. The experience was largely made up of muscular and tactual and pain sensations, and the fact that these determined the localisation of the experience as a whole teaches nothing as to the relative tactual locality of different places in the visual field. Home's second patient, who suffered little, testified that things did *not* seem to touch his eyes, but he could not say how far off they were. The other observers, so far as I can discover, say the same or are silent on this point. I have not seen Nunnely's nor v. Francke's report, nor that of Uhthoff's first case.

of paper with a horizontal and a vertical line on it. "When I asked him to point out with his finger the horizontal line," Franz writes,[1] he moved his hand slowly, as if feeling, and pointed to the vertical; but after a short time observing his error, he corrected himself. The outline in black of a square, six inches in diameter, within which a circle had been drawn, and within the latter a triangle, was, after careful examination, recognised and correctly described by him. When he was asked to point out either of the figures, he never moved his hand directly and decidedly, but always as if feeling, and with the greatest caution; he pointed them out, however, correctly." And various other experiments gave the same results.

This also is the testimony of Uhthoff,[2] who went carefully to work to test his patient with this problem distinctly in mind. When the bright little boy, operated on by him for congenital cataracts, was required, during the first experiments, to point to some prominent object which he evidently saw, he continually pointed quite beside the mark, and did this again in check-experiments. In two days, however, he learned to point out accurately the things in sight.

And finally, Vurpas and Eggli,[3] who also had this same question consciously before them, obtained similar results after operating on their little patient Louis. When he had learned to recognise visually an orange before him, and was required to grasp directly at it (rather than feel around for it, which he always did unless prevented), he invariably missed it, going to the right or to the left, as if sight gave no real assistance. The authors conclude that sight, in its original dissociated purity, gives no sense of direction; and Binet, in reviewing their work,[4] suggests that the results need only mean that the sense of direction given by sight alone requires time and training for its development, and these the child as yet lacked. I see no reason why they need mean even this; the facts may be accounted for even if we admit that the visual perceptions already gave some sense of direction, but of direction *confined within the visual system;* in other words, that even at this early stage the sight-perceptions were arranged with reference to each other, and thus possessed

[1] *Philosophical Transactions*, 1841, pp. 64-5.

[2] "Weitere Beiträge zum Sehenlernen blindgeborener und später mit Erfolg operierter Menschen," u.s.w., *Zeitschrift für Psychologie*, xiv., 195.

[3] "Quelques recherches psychologiques sur le sens de la vue chez deux enfants opérés de cataracte double congénitale," *Annales médico-psychol.*, juillet, 1896; reprinted almost in full in *L'année psychologique*, iii., 384.

[4] *L'année psychologique*, iii., 389.

mutual direction and locality, but this meant nothing for the child, because they formed an isolated system, out of all connexion with the rest of his experience. Time and training were necessary, then, not to develop this purely visual arrangement or direction, but to make it signify something in regard to the other sensory fields, and permit a translation of its various localities into muscular and tactual terms.

The motor bewilderment of the recently blind, when attempting to guide their acts visually, thus becomes quite intelligible from the point of view already suggested by the results with the inverting lenses and with the mirrors. So that I cannot feel that the observations on these persons, when we consider the reports as a whole, rather than occasional statements in them, are really opposed to the view presented. Inasmuch as they offer additional facts which are exactly what that view would lead us to expect, they might even be regarded as favouring my own explanation to a certain extent.

But some might admit that in our developed and normal consciousness touch and sight severally give us a sense of locality, and that the tactual positions become connected with the visual only by observing simultaneous changes in the two senses, and that any visual place could consequently be identified with any tactual place whatever under a suitable sequence of impressions, and yet they would perhaps hesitate to say that the two forms of localisation were not ultimately reducible to one. The experiments on persons like myself, who have seen and touched for years, they would hold, teach nothing as to the sources of the spatial arrangement,—as to whether it comes originally from touch alone, or from sight alone, or from both independently.

I would of course readily acknowledge that the experiments offer nothing decisive of this underlying question. The mere fact that the explanation of my own experiences would also account for the motor confusion of persons suddenly attaining sight is no proof that their confusion really is due to the conditions set forth in this explanation. Their behaviour could arise from other circumstances—from a want of original spatial character in sight, as Berkeley and others have supposed, or from a lack of this character in touch, as many persons in daily intercourse with the blind believe.[1] But while experiments on a person long accustomed to both sight and touch give nothing conclusive on this question of

[1] See, for instance, Dunan: "L'espace visuel et l'espace tactile. Observations sur des aveugles," *Revue philosophique*, xxv., 357 *et seq.*

the original spatial character of our senses, I feel that they have at least a definite bearing on the problem in so far as persons base their decision directly on the difficulty those born blind have in visually recognising familiar forms and objects, as well as in reacting appropriately in their presence. As to the reactions, enough has been said to show that they are a poor basis for such an argument; they do not imply that touch and sight are absolutely dissimilar, but only that the localities in one are not yet identified with definite localities in the other. In regard to the visual recognition of objects familiar by touch, the facts become somewhat easier to understand when one has passed through the ordeal with lenses and mirrors. The mere inversion of the field of view may cause a surprising disturbance of discrimination and recognition, especially in its nicer forms; so that the shape of an object may not be as exactly noticed as before the inversion, and many things plainly in view may be entirely overlooked. I remember looking at an open fire-place, under these circumstances, for some time, without noticing that a large piece of wood had rolled out on the hearth and was filling the room with smoke. The odour was the first effectual warning I had of what had happened. And in walking through a familiar village on a bright moonlight night I was usually unable to recognise my surroundings. And yet the sifting-out of the common space-relations in two sorts of perception so closely akin as upright and inverted vision must be mere child's play in comparison with the detection of the features common to tactual experience and to an absolutely novel spatial order such as that of sight. The very difficulty of analysing the new experience, of selecting points of attack, and of discerning what is significant or what is not, in the infinite confusion of lines and colours—this would certainly be sufficient to account for the frequent, though not universal, failure to recognise what is common to both new and old, without our inferring that the new and old have absolutely nothing in common. In this indirect way, by weakening some of the motives for denying an original spatial character to one of these senses, the present experiments may possibly have a larger application.

But of course primarily they have to do with matters nearer at hand; with the process by which the different sense-perceptions, whatever may be the ultimate source of their extension, are organised into one harmonious spatial system. The harmony is found to consist in having our experiences meet our expectations. When sight suggests some definite place in the touch-field and the object is

actually felt in that position, and when touch suggests some definite visual position where the object shall be seen, and it is actually seen there, sight and touch are then harmonious. The essential conditions of the harmony are merely those which are necessary to build up a reliable cross-reference between the two senses. This view, which was at first based on the results with the inverting lenses, is now given a wider interpretation, since it seems evident from the later experiment that a given tactual position may have its correlated visual place not only in any direction, but also at any distance, in the visual field.

V.—KANT'S PROOF OF THE PROPOSITION, "MATHEMATICAL JUDGMENTS ARE ONE AND ALL SYNTHETICAL".

By Bruce McEwen.

It needs no very profound analysis of the *Critique of Pure Reason* to demonstrate that the Æsthetic, as it stands in the forefront of Kant's system, fulfils a distinctly double purpose. Leaving aside the doctrine of Time and regarding only the doctrine of Space, we find that it presents itself to us under two quite different aspects, according as we look at it from one or the other of two points of view towards which the author himself repeatedly directs our attention. Considered alone and by itself, the Æsthetic has a purely dogmatical, assertoric or didactical value: it is a theory as to the nature of Space and of Spatial existences. But when we pass beyond this first crude conception of the Æsthetic, and begin to trace out the various lines of connexion, which lead to every part of Kant's speculations, when we examine the internal arrangement of the matter of the *Critique* and the relations of interdependence and mutual defence, which Kant strives to establish between all portions of his system, there is gradually unfolded before our eyes the higher purpose of the Æsthetic, as a first apology for the whole. However much we may prize the content of the doctrine of Space for its own sake, still to the true Kantian it will always seem relatively more important to regard the Æsthetic as giving us, in Kant's own words, "one part of the answer necessary for the solution of the great general problem of the Transcendental Philosophy, namely the problem: How are synthetical propositions *a priori* possible?" The vindication of those forms of knowledge, which are at once synthetic and *a priori*, is the object of the new Criticism from beginning to end, and with his doctrine of Space and the corresponding real science, Pure Mathematics, Kant introduces the thin end of the wedge destined to cleave asunder the sceptical denial of the reality of all knowledge of this type. "When Hume felt the truly philosophic impulse to cast his glance over the

whole field of pure (synthetic) knowledge *a priori*, he somewhat recklessly excluded a whole province of such knowledge, —perhaps indeed the most important province,—namely Pure Mathematics." Ask Kant for an instance of this real knowledge, and he is found too cautious to mention the name of Metaphysics: he "points to a Euclid" and says, Here! "Pure Mathematics, in spite of the attacks of the hardiest sceptic, stands, like a Colossus, for the proof of the reality of a knowledge enlarged and augmented through Pure Reason alone."

Now from the latter of the points of view, thus briefly indicated, Kant's object is to prove two leading characteristics of Mathematics; first, that it is synthetic knowledge; second, that it is knowledge *a priori;* and for the proper understanding of the opening chapters of the *Critique* it is absolutely necessary to keep the two parts of this proof distinct. Neither of them depends in the very least degree upon the other; either might be invalid, while the strength of the other remained unweakened. The terms 'synthetic' and '*a priori*' are far from being indispensable to one another; the often repeated use of them in conjunction, to describe different kinds of knowledge, implies in each case two distinct investigations of the nature of the knowledge so described. In the present essay we shall examine only the process, by which Kant sought to prove the synthetic nature of Mathematics, and leave the other investigation strictly out of account. Kant's final view on the point, which concerns us here, is summed up in his brief statement: "Mathematical judgments are *one and all* synthetical"; we shall see that Kant reached this result only after a long struggle, in the course of which all varieties of mathematical judgments came directly under his consideration: we shall try to dispose of those objections to Kant's doctrine, which deny the perfection of his induction, and seek to overthrow it by producing particular instances from mathematics of analytic judgments supposed to have been overlooked by Kant. Questions as to the *a priori* nature of mathematics, or the validity of the distinction between analytic and synthetic judgments generally, will be treated as irrelevant: our procedure is primarily exegetical, and, if at any point it be necessary to defend Kant's doctrine, our defence will be confined entirely within the limits already assigned to our investigation.

To the historian of philosophy nothing is more obvious than that Kant was merely following the example of a long and illustrious line of predecessors when he entered upon the realm of Philosophy from the side of mathematical

science. Indeed so commonplace is this observation, that in consequence the historian is usually led to neglect the vast difference which distinguishes Kant's first appearance from that of the many other "mathematical philosophers". The followers of Descartes, especially on the continent of Europe, had pinned their faith in mathematical matters to the analytical method introduced into geometry by their great master. The comparatively modern science of Algebra was applied to the problems of Space and Motion, and in the hands of such colossal geniuses as the Bernouillis, Leibniz and Euler problems, which had long been the despair of the Euclideans, found a simple and accurate solution. For the time there appeared to be no limit to the powers of the new mathematical analysis. In Geometry, in Dynamics, even in the mixed sciences, Astronomy and Physics, it absorbed, transformed and reproduced all previous results with such startling rapidity that the credit of discovery has often been wholly filched away from the original author by those who merely borrowed his thoughts.[1] But alongside of this rapidly advancing Cartesian system the old conservative methods, which had come down from the days of Pythagoras and Plato, always retained many illustrious intellects in their service. The English school of Scientists, represented by Boyle, Hooke, Newton, and the other founders of the Royal Society, continued to give ample proof of the vitality of pure geometry and experimental investigation in science. Still, as we have said, their discoveries were no sooner proclaimed than appropriated by the analytical method, all signs of the source from which they came being thereby obliterated.

Accordingly it must have been with feelings of surprise that Kant's contemporaries beheld one who was born into and educated under the new analytical school throwing off the traditions of his time, and returning to the methods they were wont to consider superseded. From the outset Kant attached himself unreservedly to the "Natural Philosophy" of Newton, adopting at the same time the peculiarly Newtonian preference for pure geometrical methods. Kant, it must never be forgotten, was a mathematician of no mean order; even if we disregard his professedly mathematical writings, we have sufficient indication of this fact in the many references to Mathematics in his philosophical works,

[1] A most striking instance of this tendency may be noticed in the case of the invention of the Differential Calculus originally discovered by Newton, but afterwards almost universally ascribed to Leibniz, who gave it the convenient algebraical form in which it now appears.

and in his private notes (*Lõse Blätter*), which are full of mathematical calculations upon knotty points, that occupied his attention from moment to moment. And yet there is not a single instance in all Kant's writings of his using the Cartesian method in geometry. He repeatedly praises it as being "rich in discovery" (*erfindungsreich*), he quotes its formulæ with a facility which betokens long acquaintance with them, yet in his own investigations he altogether disdains its aid.

And Kant was not content to limit his mathematical speculations to the pure geometrical method without giving good reasons for his preference. In Dynamics Newton had often gone considerably out of his way to preserve the purity of his procedure; his *Principia* explain the motion of a body, moving under certain forces, by actually following out its path on paper from point to point before the eyes of the reader. Thus by strictly geometrical methods the orbits of the moving masses are depicted *in concreto*, and when the process is finished the nature of these orbits is intuitively deducible from the nature of their construction. In direct contrast with this somewhat slow and laborious process the Leibnitian method simply writes down a symbolical expression for the forces acting on a mass, and by a single swift stroke (Integration) another is deduced, which is the perfect algebraic expression for the curve described. So far, the analysis appears to have been concerned with mere signs in the abstract, but a serious difficulty now presents itself, when we try to interpret our results. We work with symbols but these have no signification, except indeed as interpreted, and for this interpretation the analytical method must ultimately call in the aid of pure geometry, for every equation used depends absolutely for its meaning upon the propositions of the Euclideans. If we use an example quoted by Kant himself we might suppose the formula, $ax=y^2$, to be the result of an algebraic analysis of the data in some problem or other: now we know that this represents a certain curve described, but it is only by a knowledge of the pure geometrical properties of Conic Sections that we are enabled to identify it with a parabola.

It is a distinct merit of Kant's, though, I believe, he has never received the full credit of it, that he clearly perceived and as boldly proclaimed the incompleteness of the Cartesian method at the very time when it was generally considered to be an instrument of mathematical research far more powerful than the pure geometry, which it really involves, and from which it was originally derived. And it was this

clear insight into what is fundamental in Mathematics that enabled Kant, as every student knows, to confine the question of the nature of all geometry with the most systematic consistency within the limits of the Euclidean method. As early as 1763, in his treatise on the *Principles of Natural Theology*, Kant takes his stand definitely within these limits and announces the doctrine that "the definitions of Mathematics are entirely synthetic, while those of Philosophy are analytic". "The conceptions, which I expound in Mathematics, are not given before the definition, but have their origin always from it. A 'cone' may mean what it will, but, within the realm of Mathematics, it is formed by the arbitrary representation of the revolution of a right-angled triangle about one of its sides. Here and in all other cases the exposition finds its origin through Synthesis." The definitions of Philosophy on the other hand, Kant at present considers to be analytic in general, yet instances may be produced, he says, "from which we might draw the conclusion that the expositions of philosophers may sometimes be synthetic and those of the mathematician analytic". "Leibniz," he explains, "formed the conception of a simple substance, which had only confused representations, and called it a slumbering Monad. Here he has not expounded (*erklärt*) this monad, but merely formed a conception of it (*erdacht*), for the conception was not given to him, but was first created by him." Kant then is quite willing to believe that philosophic definitions may be of two kinds but he sturdily denies that the same is true of Mathematics. "The expositions of the mathematicians," he says, "have often been analytic in their nature, I admit it, but yet there has always been an error involved. For example, Wolf considered geometrical similarity from a philosophic point of view, so as to bring this particular case under the general conception of similarity." But Euclid's definition of similarity runs: 'Rectilinear figures are said to be *similar*, when they are equi-angular and have the sides about the equal angles proportional' with a corresponding definition, if need be, for curvilinear figures, so that "for Geometry nothing depends on the general definition of similarity".

Here then we have Kant's first detailed account of the nature of mathematical definitions, and this account he never saw fit to alter, save perhaps by multiplying and improving his illustrations of its truth. Throughout the remainder of his writings it is always laid down that the mathematician in defining proceeds "by constructing his conceptions, and not by analysing them". When this

favourite phrase is contrasted with Kant's more general statement, that Mathematical judgments are always synthetical, it has again and again been pointed out that this latter expresses more than was really necessary for Kant's purpose. It is admitted that the three moments of all mathematical procedure consist, as Kant has said, of Definition, Axiom and Demonstration, yet the synthetic nature of Mathematics generally is sufficiently proved when it is shown that the Definitions are synthetic. But with any such partial result Kant is not satisfied: he extends his inquiries at once to every part of mathematical processes. Here, unfortunately, Kant's opinions were slow to crystallise into their final form, and the result is that there is always an appearance of wavering about his statements. At times he seems to admit analytical principles into mathematical method, again to deny them, sometimes to give expression to both views almost in the same sentence.

The difficulty lies in the fact that, in Algebra and Geometry alike, the mathematician speedily passes away from an actual representation of real things to a consideration of letters, figures, or words, which, for the time being, are treated as mere signs. Take for example an ordinary mathematical syllogism—

$$x = y$$
$$\text{and } w = v$$
$$\therefore x + w = y + v \text{ and } x + w > y.$$

The letters, x, y, w, v, here used, may be mere algebraic symbols, or on the other hand in pure geometry they may stand for lines, or plane angles, and so on, but in any case certain fundamental propositions (*Grundsätze*) are involved in manipulating them, namely two well-known Axioms of Euclid: If equals be added to equals the wholes are equal; and: The whole is greater than its part. Now these "axioms" are quite obviously of a different class from such axioms as: Two straight lines cannot enclose a space; which is Kant's best example of a purely synthetic and intuitive proposition. This latter axiom is applicable only in geometry, while the two former seem to extend to Algebra, and even to the non-mathematical procedure of human Reason. Are such axioms then synthetic? Are they not rather analytic? It is possible, says Kant in one passage, "to prove them in strict philosophic fashion out of mere conceptions"; it can never be "the proper business of Mathematics to prove that the whole is greater than the part". And yet we may quote a passage from the Transcendental Æsthetic which runs: "Every geometrical axiom is derived from intuition

a priori, and with apodeictic certainty and never from general conceptions". At first sight there appears to be considerable confusion here, and many of Kant's opponents have promptly taken advantage of it to deny his theory, that mathematical judgments are one and all synthetical. Still the fact remains that in Kant's earlier view a synthetic nature is claimed only for the Definitions of Mathematics: the definitions are synthetic, but the remainder of mathematical procedure Kant still considers to be in great part analytic.

"In Arithmetic," he says, "we treat not the things themselves but their signs which indicate the magnitude of the things and their relations as greater and less, etc. Afterwards we work with these signs according to easy and sure rules by transposition, addition or subtraction, and different sorts of operations, so that the things indicated by the signs are in the meantime completely dropped out of consideration, until finally in the conclusion the meaning of the symbolic result is deciphered." By Arithmetic Kant means "both the general doctrine of indeterminate magnitudes," or Algebra, and the "particular doctrine of numbers, where the relation of the magnitudes to unity is strictly determined," Arithmetic in the ordinary narrow sense. The view expressed in the foregoing quotation is that, so long as we work with signs, we proceed *in abstracto* and analytically without being assured that any real object corresponds to our signs *in concreto*. But in Mathematics "the meaning of the signs must be sure" at every point, and therefore a synthetic and intuitive process must precede our using signs; in fact when we say, Let x or let the figure 3 represent the objects, this process is always subject to the condition that it be "possible for these signs actually to represent the things" and that "one should clearly understand what meaning he assigns to them". Otherwise the symbolical result we reach can never be properly deciphered, indeed may be perfectly absurd. Every schoolboy knows how clearly he must lay down the meaning of his symbols before he begins to use them, for he has already experienced, if at least he is conscientious, many an instance of the complete bewilderment which ensues, when after a long exercise in Arithmetic he obtains an answer in figures, say 19, but knows not whether it is 19 men, 19 shillings, 19 eggs, or 19 of anything else real or imaginary. Suppose an answer so obtained to be numerically correct, then from his earlier point of view (in 1763) Kant would say that the analytical process of sign-manipulation was correct, the synthetic and intuitive adoption of signs instead of things equally cor-

rect, and their "relations as greater or less," etc., properly understood, but the corresponding synthetic and intuitive retranslation of the signs into the concrete was defective. In Pure Geometry, on the other hand, we certainly do work with signs "by transposition, addition or subtraction, and other operations," but we retain throughout a concrete sense representation of our process from point to point in the figure which we construct, we are continually passing from mere signs to their meaning in the figure, and therefore in this case the same difficulty does not appear. Mathematics, Kant says in fact, always presupposes synthetic processes, yet its method may be largely analytical.

Now this double view of the nature of mathematics in general continues to pervade Kant's work at least down to the publication of the first edition of the *Critique*. In the *Dissertation* of 1770, where "the distinction of Sense and Intellect had come to Kant's aid," his doctrine receives a new verbal setting, but in its essence it remains unchanged. The intuitive and synthetic procedure of Mathematics is represented as characteristic of the use of the faculty of sense, intellect proceeds by analysis. "Of the objects of the intellect," says Kant, "men are given no intuition, but only a symbolical cognition, and the use of the intellect is possible to us only by means of universal concepts *in abstracto* and not by singular instances *in concreto*." This use of the intellect through universal concepts *in abstracto* is the exact equivalent of the "Metaphysics," which Kant so clearly distinguished from geometry in his *Monadologia Physica* of 1756 and later in many detached passages. When the Geometrician sets out to prove that space is infinitely divisible he constructs a figure, in which he says: Draw an "infinite" number of straight lines from a fixed point. Using this symbolical figure *in concreto*, he sees intuitively that the division of Space must go on without end. The philosopher, on the other hand, argues that he can, in thought, remove all composition from a material body, which nevertheless must still consist of real substance, and therefore he concludes that, when all composition is removed nothing but simple substances are left. Here we have neither figures constructed, nor signs introduced, but from mere consideration of universals *in abstracto* the philosopher can draw his conclusion: All composite substances consist of simple parts. Such, in short, is the essence of Kant's earlier treatment of this 'Antinomy,' but now he can give a new colouring to his older outline. Philosophic procedure is concerned with the objects of intellect, mathematics with those of sense. But

just as Kant formerly felt unable to characterise all the procedure of Mathematics as synthetic and intuitive, so now he cannot yet affirm that it is entirely concerned with objects of the sense-faculty. "Pure Mathematics," he says, "considers Space in geometry, and Time in pure Mechanics. To these we must add a certain conception, namely the conception of Number, dealt with by Arithmetic. This conception, in itself indeed, is of an intellectual nature, but nevertheless its realisation *in concreto* requires the aid of the notions, Space and Time (in adding together quantities in succession and combining them)." And so it comes about that, while Kant can announce his result: "Therefore pure Mathematics expounds the form of all our sense-knowledge and is the organon of every kind of intuitive and distinct cognition"; he is still forced to except Arithmetical procedure, a most important exception from a general treatment of Mathematics. To be sure, in "Arithmetic" we have "*cognitio symbolica*" if we only use that phrase vaguely enough, and we might therefore suppose it was something akin to the symbolical knowledge we have of objects of the intellect in Philosophy.

Now after 1770, if Kant intended to make his treatment of "Arithmetic" consistent, two courses were open to him. He might boldly deny that it was in any sense a part of Mathematics, and no doubt the consequences of this denial would, in Kant's time, have been easily accepted by many philosophers. He might affirm that the principles of Arithmetic were purely analytic, that it was concerned only with objects of the intellect and therefore proceeded not by intuition but only by analysing universal concepts, in fact, by purely symbolic cognition. But by proclaiming such a result Kant would at once have ranged himself on the side of the philosophic defenders of the Cartesian 'mathematical analysis,' for the central assumption of their theory of mathematics lies in some distinction between Algebraical and Geometrical method, such as that which would have been directly implied by Kant's adopting the course we have suggested. Or if Kant hesitated to regard "Arithmetic" as a branch of Philosophy and wished rather to bring it into strict accord with pure Mathematics (*Mathesis Pura*), which he formerly spoke of as limited to Geometry and Mechanics, it was necessary for him to prove that the procedure of "Arithmetic" was really non-philosophical. Now Kant chose this latter alternative, and accordingly, in 1781, we can easily trace the presence of a distinct improvement in his doctrine.

In the paragraph of the *Critique* on the Axioms of Intuition

he introduces for the first time a statement to the effect that "self-evident propositions as to the relations of numbers are certainly synthetical," and produces as proof an examination of his much-misunderstood instance of Arithmetical procedure, the addition of seven and five to make twelve. "The proposition, that $7 + 5 = 12$, is not analytical." "For neither in the representation of seven, nor of five, nor of the composition of the two numbers, do I cogitate the number twelve." If we borrow from the later defence of this thesis in the *Prolegomena*, we find that Kant considers it absolutely necessary in numerical addition "to go beyond our conceptions and have recourse to an intuition". We must represent before ourselves five fingers or five points, adding five to the number seven "by means of this material image, and by this process we at length see the number twelve arise," just as by representing to ourselves on paper the figure of Euclid's thirty-second proposition we can conclude that the sum of the interior angles of a triangle is two right angles. In neither case does Kant mean that the material image is necessary: it is only an empirical means of aiding us to reach the pure non-empirical intuition which lies behind. We should very much like to defend Kant's analogy between pure and empirical intuition, inasmuch as the many attacks directed against it in this connexion seem to be both ill-founded and inconclusive, but to do so would lead us far beyond our immediate task of exegetical exposition. And therefore we take Kant's argument to be quite sufficient of itself to warrant his conclusion, that "Arithmetical propositions are invariably synthetical," and ask only how much Kant here claims to have proved. He expressly says that such propositions as $7 + 5 = 12$ are not axioms but "numerical formulæ," giving (in 1781) the ostensible reasons that we cannot have an infinite number of axioms and that axioms must be universal as in geometry. In 1783 they bear the simple name of "propositions" (Sätze), and no mention is made of their non-axiomatic nature. They are treated as corresponding to the principles on which pure Geometry founds such principles as: "The straight line between two points is the shortest," but although Kant usually speaks of this example in language which implies that he himself regards it as an Axiom, it nevertheless ranks as a proved Proposition in Euclid, and diverse views of its real nature have always been common among mathematicians. For this reason it would be hazardous to attempt any elaborate comparison of these Arithmetical propositions with other instances of synthetic *a priori* propositions, but yet, when

Kant has proved the synthetic nature of these "numerical formulæ," it would be quite as superfluous to point out that they are involved in all Arithmetical procedure, as it formerly was that the Definitions, Axioms and Principles of Euclid are involved in all Geometry. In both cases Kant has penetrated to what is obviously fundamental in Mathematics; it is immediately clear that all mathematical arguments, whether in Geometry or in Arithmetic, do ultimately depend upon an intuitive and synthetic groundwork. And if we admit that the most elementary processes in each branch of Mathematics are strictly synthetic, it is certain that this synthetic character will cling to all judgments that follow them. "For although a synthetic principle can certainly be discerned by means of the principle of Contradiction, yet this is possible only when another synthetical proposition precedes, from which it can be deduced." When the synthetical proposition that 'two straight lines do not enclose a space' is given, we can deduce directly from it, that two particular straight lines AC and AB, meeting at A, do not meet in any other point, but this conclusion, though analytically derived from our general principle, is none the less itself purely synthetical.

But before Kant could honestly formulate his comprehensive statement that 'mathematical judgments are one and all synthetic,' it was necessary that his view of the fundamental principles of Mathematics should be absolutely uniform, recognising no exceptions, and in 1781 it was just at this point that Kant failed. In the first edition of the *Critique* (p. 163) he deliberately styles a large number of Euclid's "Axioms" analytical, and inasmuch as it would be folly to exclude them from the category of mathematical judgments, he was fully justified in postponing the announcement of his final opinion. "As regards the quantity of a thing (*quantitas*)," he says in the passage referred to, "namely in answering the question, How great? we have at hand various propositions synthetical and immediately certain (*indemonstrabilia*), but we have in the proper sense of the term no Axioms. For example, the propositions, 'If equals be added to equals the wholes are equal,' 'If equals be taken from equals the remainders are equal,' are analytical, for I am immediately conscious of the identity of the production of the one quantity with the production of the other, whereas Axioms must be synthetic propositions *a priori*." Now this remark applies to no fewer than nine of Euclid's twelve axioms, and were we to judge of all of the axioms *de quantitate* by the two examples Kant gives, we might infer

naturally enough, though perhaps rashly, that such axioms really were general principles applicable not only in Geometry and Arithmetic, but also, as we have already remarked, in all human reasoning, and therefore we might conclude that their proof was not completely attained if we attempted it mathematically. We might decide, and, I firmly believe, Kant's opinion in 1781 would support our decision, that Mathematics is here borrowing general principles proved analytically by Philosophy and applying them for her own particular purposes, not as axioms, for, as Kant states in his *Logic* (§ 36), "analytical propositions never are axioms (*axiomata*) but depend upon the identity of conceptions (*acroamata*)". But, as a matter of fact, if any one should try upon Kantian principles to defend Kant's statement, that we have no "axioms" *de quantitate*, we could at once deny this to be true within the sphere of Mathematics, by producing a positive instance of such an axiom, an instance which, so far as I see, admits of no doubt, namely the eighth axiom of Euclid: "Magnitudes which can be made to coincide are equal". Its very phraseology indicates that we are to superpose two magnitudes in pure intuition in order to see their equality; it certainly is an axiom *de quantitate* (I should say it is the fundamental axiom of quantity in Geometry), and no analysis of conceptions could ever produce it. Now I do not know what the test for Equality in general may be, I have serious doubt whether any such exist, but in Geometry I have a truly geometrical and spatial test of geometrical equality in the coincidence of superposed figures. And if a pure spatial intuition of the coincidence of two figures be the only means by which we can know them to be equal, then all axioms as to geometrical equality directly involve an intuition of this nature and therefore are like the eighth axiom synthetic. Indeed, whenever we compare any two geometrical figures, whether with regard to equality or inequality, we must in the end resort to superposition and an intuitive perception of their relation to each other, and for this reason I consider all axioms *de quantitate* to be perfectly synthetic.

But Kant's subsequent silence on this point makes it for ever impossible to discover whether such considerations had any real influence upon him or not. True, the passage we have opposed was neither obliterated nor altered in the second edition of the *Critique*, and yet I think there is in that work quite sufficient indication that Kant was well aware of the deficiencies of his earlier position. In the fifth paragraph of the Introduction, which appeared for the first

time in the *Prolegomena* and was literally transferred from it to the *Critique*, Kant seems to repeat his former doctrine. "Some few fundamental principles," he says, "which are preposited by geometricians, are indeed really analytic and depend upon the law of contradiction, but they serve, after the fashion of identical propositions, only as links in the chain of method, and not as principles,—for example $a=a$, the whole is equal to itself; or $a+b>a$, the whole is greater than its part." Here the old examples are dropped and of the two substituted the latter alone is a recognised axiom of Euclid. There certainly is an axiom which runs, Things which are equal to the same thing are equal to one another; but I know of no geometrician who ever thought it necessary to preposit the law of Identity $a=a$ to his works. But let that pass and let us understand Kant to mean that two analytical propositions are actually used by mathematicians. Then read the next sentence, "And yet even these same propositions, although they are valid according to pure conceptions, *are admitted in Mathematics* only for the reason that they can be presented in intuition". Now these words mean, as plainly as words can, that in Mathematics these same principles are synthetic, which in the previous sentence were called analytic. I do not believe that Kant could quote the law of contradiction in one sentence and then proceed to break it with his next; some explanation of the disagreement must be found, and I think a sufficient explanation has already been shadowed forth in our own discussion of axioms *de quantitate*. The general statement of any of these "axioms" may be analytic, just because when formulated most generally it is intended to be applicable to all parts of experience, but in Mathematics it has its application confined to questions of mathematical magnitude, which, as we have said, always depend ultimately upon direct intuition. The logical or analytic proposition, the whole is greater than its part, may have a vast variety of different meanings under different circumstances, but in Mathematics it has a meaning it can have nowhere else. If in Geometry we wish to compare any two quantities as to their relative magnitude, they must be superposed and their equality or inequality intuitively perceived; before we can say that one quantity is greater than another, this same intuition must have preceded our judgment, that is to say, we must regard the two as superposed one upon the other. Thus it comes about that the proposition, $a+b>a$, is "admitted in Mathematics only for this reason that it can be presented in intuition".

Moreover the general analytical expression of this axiom

could never be applied in Mathematics without leading at once to perfect absurdities. The circumference is 'a part' of the circle if we use the term 'part' in the general non-mathematical sense, and yet for geometry it is absolutely inane to say, that the circle is greater than the circumference, for a plane surface of two dimensions can never be superposed upon a curved line of one and therefore can never be compared to it in magnitude. If we borrow Kant's language concerning Space generally we might say, that a geometrical whole contains all its parts *in se, non sub se;* the parts of a line are lines and not points, a plane is divided by geometry into planes, a solid into solids. But the general or philosophic conception of a whole, from which is derived the analytic expression corresponding to Euclid's ninth axiom, contains its parts *sub se* and therefore the analysis of it can never give us a principle applicable as a geometrical axiom. The words 'whole' and 'part' have two quite distinct significations in Philosophy and Mathematics, while Mathematics has simply nothing to do with the philosophic meaning of 'greater' and 'less'. Accordingly in his next line Kant continues, "What commonly causes us to believe here, that the predicate of such apodeictic judgments is already contained in our conception, and that the judgment is therefore analytic, is merely the equivocal nature of the expression". Every word in Euclid's ninth axiom has a meaning peculiar to Mathematics and foreign to the ordinary usage, so that, unless we clearly distinguish the two applications of our one principle, we are apt to term it analytic in circumstances, under which its analytic meaning is at once false and absurd. And yet it is easy to see the danger of error, which must always confront the mathematician, when he expresses a geometrical axiom in words identical with those of a logical and analytical formula. "We must," says Kant, "join a certain predicate in thought to a certain given conception, and this necessity cleaves already to the conception. But the question is, not what we must join in thought to the given conception, but what we really think in conceptions though only obscurely. Then it becomes manifest that the predicate pertains to these conceptions, necessarily indeed, yet not immediately, but only by the mediation of an intuition, which must be added to the conceptions." In these axioms we use certain conceptions, which, to borrow a modern phrase, already have a certain connotation, but for purely mathematical purposes this connotation is quite valueless. Even though it be settled that a certain conception is necessarily joined to certain predicates, this junction

may be effected either analytically or synthetically, that is, either immediately or mediately. Now when in Mathematics we ask the question, What do we really think in a conception? we must add an intuition to that conception, and apart from such an intuition no real mathematical judgment arises. Kant's meaning in the paragraph, from which we have quoted, I take to be perfectly plain. He has already pointed out that all mathematical judgments are synthetical with the exception of "certain principles which serve as links in the chain of method". But on a further examination of these apparently analytical principles, Kant finds that they are admitted in Mathematics only conditionally; they are not accepted simply because Philosophy claims to guarantee their validity from pure conceptions, they must from the first have their truth made self-evident by means of an intuitive representation of a particular sensible and concrete instance, just as is necessary in geometry for the acceptance of the axiom, that two straight lines cannot enclose a space. Inside Mathematics these axioms are synthetic and their analytic appearance is a mere delusion brought about by the fact that the words, in which they are expressed, have another distinct and non-mathematical interpretation that really is analytical. And thus in 1783 the universal affirmative proposition is possible for the first time: "All mathematical judgments, without exception, are synthetical," for the former supposed exception is now finally removed.

At this point we intend to discuss shortly a few of the criticisms that have been passed upon Kant's view of mathematics, not so much because we wish to defend Kant's doctrine in a way which must necessarily lead us beyond the study of Kant's own writings, but because so many of these criticisms seem to imply a different interpretation from ours of the passages which discuss axioms *de quantitate*. We have neither time nor inclination to treat of those arguments which object to Kant's doctrine of the synthetic nature of mathematical definitions, and by producing particular instances seek to cast doubt upon his whole theory. The statement, that the conception of a triangle contains the mark of having three sides, is a perfect type of them, and I confess it is difficult to regard such arguments seriously. I wonder how often in his works Kant lays down the maxim that Mathematics proceeds by construction of conceptions, always assuring itself by intuition of the possibility of the object to which they correspond. Without hoping ever to convince any one, to whom such an argument as that mentioned above seems conclusive, I would merely suggest for

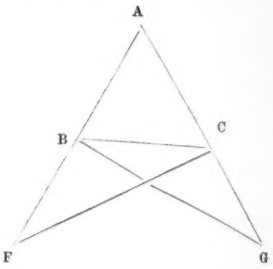
his consideration a true example of a proposition, which is analytical in Mathematics, namely, "A Duangle is a plane figure bounded by two straight lines"; and I would ask what part of Mathematics this definition occurs in? But in those criticisms of Kant's doctrine which discuss the nature of axioms *de quantitate* we have to deal with objections of quite another class. These arguments have their weight considerably increased by the fact that Kant's own words can so often be quoted in such a way as apparently to support them. Indeed we might safely say that it is universally considered to be Kant's final opinion of axioms *de quantitate* that they are analytic, and of course it is then easy to deny the statement that mathematical judgments are always synthetical. But such a view can only be held by those who are prepared either to ignore or explain away the glaring contradiction we have pointed out. One well-known commentator[1] has published a theory that the sentences in which Kant in our view of the matter declares the mathematically synthetic nature of axioms *de quantitate* have no immediate reference to those axioms. Therefore there must be a displacement of the order of this paragraph due either to a printer's error or to the author's negligence. It is supposed that Kant agrees to consider axioms *de quantitate* as analytic, and that the sentences which seem to contradict this view were originally penned in some quite different connexion from that in which they now stand. We have already tried to point out that such an artificial explanation is unnecessary and would indeed leave the opening statement of the general nature of mathematical judgments ill-founded. Moreover a displacement of a paragraph, so serious as that suggested here, might perhaps have been possible on one occasion, but that an author should have copied the same section literally into a work four years later, without correcting its error, seems to me an untenable hypothesis. The argument must be taken as it stands and we venture to claim that our explanation of it is the only one possible.

Of the many particular instances with which critics seek to confirm or illustrate their interpretation of Kant's views on those axioms we shall take only one example and endeavour to show, on mathematical grounds, that it is a fallacy. It is said that the Law of Identity, a thing is equal to itself, is largely used in Geometrical proofs after the fashion of an

[1] The objection here is not to Prof. Vaihinger's theory of "a leaf-displacement in the Prolegomena" but to the use made of the theory in explaining this passage in his "Commentar," vol. i.

analytical proposition. And the illustration given is the use of an angle, which being "common to two triangles," often helps us to prove them equal in every respect. Now in Euclid the first case of such procedure occurs in the proof of the fifth proposition, where we have the following argument. (We presuppose Euclid's construction.)

In the triangles FAC, GAB,
FA = GA,
and AC = AB,
and the angle A is common to
the two triangles,



therefore they are equal in every respect.

Here the conclusion follows directly from the fourth proposition which proves the equality of two triangles by superposition. But it must be noticed that, when we superpose the triangle FAC upon the triangle GAB, we must place the angle BAC in the entirely new position CAB. In fact we must invert the angle or, putting it with empirical crudeness, we must turn the paper over, and then we see that the angle is not changed. I should distinctly deny it to be an analytic proposition, following from the law of Contradiction, that the angle A is equal to itself inverted in this way.[1] That A = A inverted is a proposition eminently synthetic but in Geometry undoubtedly true. While no geometrician would ever think of denying the Law of Identity, yet I would assure any of Kant's critics that an instance of an identical proposition openly formulated in Mathematics cannot be found.

In his *Doctrine of Method* Kant lays down that "the ground-evidence of Mathematics depends upon Definitions, Axioms and Demonstrations"; and we have traced the gradual recognition by Kant of the synthetic and intuitive nature of all three of these 'moments' of Mathematics. It is true that Kant appears rather to neglect the Arithmetical part of Mathematics, preferring to discuss the nature of

[1] A clear apprehension of this fact would go far towards removing the objection commonly felt by mathematical purists to the simple proof of the fifth Proposition which is obtained by inverting the triangle BAC and superposing it upon itself without any further construction.

geometrical procedure; yet, when need be, he is able to draw a good analogy between the science of Space and the science of symbols. "By means of a symbolical construction of quantity," he says, "Algebra arrives at results, which discursive cognition cannot hope to reach by the aid of mere conceptions, and in this way it resembles Geometry with its ostensive and geometrical construction (of the objects themselves)." And if there be any inequalities in Kant's analysis of Algebra and Geometry, it is perfectly clear that to the author himself they seemed unimportant. He speaks of his estimate of mathematical judgments as if he knew it to be true of Mathematics throughout and honestly proved in the case of Definition, Axiom and Demonstrated Proposition, in Geometry, in Arithmetic and Algebra alike. The various distinct steps of this proof we have already mentioned in detail, the conclusion Kant draws is summed up in the words "Mathematical judgments are one and all synthetic"; we have decided that not a single type of mathematical judgments was left out of Kant's consideration, and we only wish that, when critics examine the fitness of the premises to produce Kant's conclusion, they would abandon the old fallacy that the view taken of Mathematics in the *Critique* is carelessly partial or incomplete.

VI.—CRITICAL NOTICES.

System der Werttheorie. Von Dr. Christian v. Ehrenfels, Professor der Philosophie an der deutschen Universität in Prag. Band. i. *Allgemeine Werttheorie, Psychologie des Begehrens.* Band. ii. *Grundzüge einer Ethik.* London: Williams & Norgate, 1897-8. Pp. xxiii., 277; viii., 270.

Some account has already been given in Mind[1] of the attempts recently made in Austria to work out a theory of value in relation to the problems of Ethics; and in particular the systematic treatise of Meinong has been discussed in connexion with the earlier papers of Ehrenfels. The present treatise by Ehrenfels is on a more ambitious scale than Meinong's work, and must no doubt be regarded as the most comprehensive treatment of the subject that has yet appeared. The first volume contains a complete discussion of the general theory of value; the second is an attempt to construct a theory of Ethics from the point of view of the theory of value set forth in the first volume; and it appears to be the author's intention to add a third volume, in which some of the more practical problems of Ethics are to be dealt with from the same point of view, and in which, more particularly, the bearings of Ethics on Economics are to be brought out.

The general theory of value, with which the first volume is occupied, falls into three parts: 1. The general conception of value and its derivative conceptions; 2. Laws of the transformations of value; 3. Analysis of desire. The second volume consists of seven chapters: 1. Ethics as the psychology of actually existent moral valuations (*Psychologie der sittlichen Wertthatsachen*); 2. Analysis of ethical facts (*Ethische Realanalyse*); 3. Ethical development; 4. Moral maxims, positive morality (*Sitte*) and law; 5. Individual Ethics and conscience: the ethico-metaphysical problem; 6. Popular ethical conceptions: the problems of absolute value and of indeterminism; 7. Summary and sketch of further problems.

In the discussion of the general conception of value, the most fundamental point in the doctrine of Ehrenfels seems to lie in the fact that he connects value rather with desire than with feeling.[2] In this way he escapes to a large extent from the common hedonistic interpretation of value. He rejects the view that desire is directed towards pleasure as an end (§9), and also the view that it

[1] New Series, vol. iv., No. 16. [2] *Cf.* Mind, *l.c.*, p. 427 *sqq.*

is determined by a present feeling of pleasure or pain (§10), and holds instead (§ 11) that the active[1] states of desire and will arise when the condition that they tend to bring about stands higher in the scale of feeling than the condition that would be brought into being without their action. This mode of statement seems considerably better than that usually adopted by Hedonists, in that (1) it does not represent feeling as the actual object of desire, and so avoids what is known as psychological hedonism, and (2) by its reference to a 'scale of feeling' it avoids that conception of feeling as an object possessing extensive magnitude, which has been so misleading in the English Utilitarian school. Indeed, the statement of Ehrenfels might be accepted as entirely satisfactory if the existence of a scale of feeling could be regarded as an ultimate fact. Its defect seems to lie in the ignoring of what I have elsewhere ventured to describe as universes of desire—the fact, that is to say, that our desires imply points of view. If this had been adequately perceived by Ehrenfels, I cannot but think that he would have seen that the consideration of the point of view from which things are valued is the most fundamental question in the whole theory of value.[2] This he seems on the whole to ignore.

In setting forth his conception of value, Ehrenfels is led to discuss various conflicting theories. He criticises Brentano's theory of Feeling and Desire as being special cases of the more general states of Love and Hate, and Schopenhauer's view of Feeling as an affective condition of Will. He also discusses the various hedonistic theories of desire, and brings his view into relation to the definition of value given by Meinong. But perhaps more interesting than any of these is his discussion of Brentano's doctrine of absolute value (pp. 43-51). Brentano holds that there is an absolute distinction between good and evil, as there is between truth and falsehood; and that the former has the same sort of independence of our subjective valuations as the latter has of our subjective opinions. Against this, Ehrenfels contends that value is entirely dependent on desire and is consequently purely subjective. It would obviously be impossible in such a review as this to give any adequate discussion of the great issues here involved; but I may express my conviction that Ehrenfels is at this point led into a serious error by the absence of some such recognition of universes of desire as I have already referred to. Doubtless value involves desire, as truth involves opinion; but Ehrenfels seems to fail to perceive that in both cases systematic methods of determination are involved which are not merely subjective.[3] The ethical significance of this point of view of Ehrenfels comes out more definitely in the second volume (chap. vi.).

The second part of the first volume, in which transformations of value are discussed, contains perhaps the most solid part of

[1] See the account of the third part below.

[2] *Cf.* MIND, *l.c.*, p. 445.

[3] *Ibid.*, p. 431.

the work. This is a subject that can be satisfactorily dealt with from that purely psychological standpoint which is adopted by Ehrenfels, and his treatment of it is full of interest. His discussion of the struggle for existence among valuations is particularly good; and some of his remarks on the survival of forms that are not directly useful may even be of importance to the biologist. (See especially pp. 158-165). He holds that organs that have no direct use to an organism *as organs* may be valuable as modes of spending a superabundant vitality. He explains horns and other excrescences in this way; and he believes that even some organs that are now of the greatest use, such as the eye, may originally have grown up and survived in a similar way. So also he thinks it is with many modes of human thought and feeling.

In the third part Ehrenfels develops his theory of desire. Here he maintains the thesis that the more pleasant presentations tend to persist in consciousness. In this connexion it is interesting to find him contending (in answer to an obvious objection), that, in people of a melancholic temperament, disagreeable presentations are often the pleasantest. This is one of the points at which a more definite theory of universes of desire might have been of service; and without some such theory it is difficult to prevent the doctrine from wearing an air of paradox. Perhaps his discussion of the distinction between wishing, striving and willing (p. 220 *sqq.*) might also have been simplified by such a theory. It should be noted that Ehrenfels's theory of the will is one of pure determinism, and that he does not recognise activity as a special and independent function of consciousness. "There is no special fundamental element in consciousness," he says (pp. 248-49), "which can be described by the term 'desire' (wishing, striving, willing). What we call desire is nothing but the presentation of an object as coming into or going out of the chain of causal connexions that is woven round the centre of the present concrete presentation of self, and thus serving as a basis for the promotion of a relatively happy state." This position is defended by Ehrenfels at some length. But here again it would hardly be profitable to attempt any discussion.

In the second volume Ehrenfels proceeds to deal more definitely with Ethics "as a branch of the general theory of value". He notes in the first chapter that there are two antagonistic views of the nature of ethical science. According to one of these, Ethics is not to be regarded as a purely theoretical science, but rather as a practical discipline, grouped along with Logic, Aesthetics, Economics, Hygiene, and the various branches of Technology, but supposed (at least by Kant and his followers) to differ from these in laying down an absolute categorical imperative. According to the other view (represented by such writers as Simmel), doubt is thrown on the possibility of establishing a normative science of Ethics, and its province is restricted to the historical investigation of moral facts. The former of these views (at least

in the extreme form represented by Kant), seems to Ehrenfels to imply the recognition of absolute values, which he has already rejected. But on the other hand he thinks it premature to adopt the sceptical attitude towards Ethics which is implied in reducing it to a mere study of actually existing institutions and modes of action. He considers that we may avoid both extremes (the antagonism between which I cannot but think that Ehrenfels exaggerates) by regarding Ethics as essentially a branch of the theory of value. Of course this does not prevent the possibility of its being developed in the end into a normative science; but, if so, its norms will probably be more modest and qualified than those conceived by Kant. And, in the first instance at any rate, it seems best to define Ethics simply as the psychology of the facts of moral valuation.

On the basis of this definition Ehrenfels proceeds in the following chapter to attempt an analysis of the fundamental facts of moral valuation. The main points that are emphasised here appear to be the following. The moral judgment tends to be passed in the end on 'dispositions' rather than on actions; and those dispositions tend to have a positive value attached to them which promote the welfare of mankind in general, while those that hinder the general welfare have a negative value. The love of humanity in its various forms takes the first place as a disposition that is positively valued; but to this must be added Justice, Constancy, Honour, Sense of Duty, Truthfulness, Self-respect, Modesty, Chastity, Temperance, Diligence, Love of Work, and the like. All these are valued as instruments of social welfare. On the other hand Indifference is the chief root of evil, especially when it takes the form of Egoism or Ipsissimism (a perhaps not very happy term for exclusive devotion to some limited circle, such as the family, the nation, and the like). As regards the meaning of general welfare, Ehrenfels points out that there are various ways in which this may be understood. It may be understood purely with reference to feeling, as by the Utilitarians, or more definitely with reference to desire, or again more objectively as health; and account ought to be taken of all these.

The third chapter is concerned with the growth of the moral judgment. In dealing with this, Ehrenfels applies the conception of 'marginal utility,' which has been so fruitful in Economics. Moral valuations tend to be guided by the marginal good (*Grenzfrommen*) of the dispositions with which they are concerned.[1] Another point that is worth noting is the emphasis that Ehrenfels lays on the Love of Development (*Liebe zur Entwicklung*) as a moral disposition that it is specially important to cultivate, and that comes to be more and more valued (p. 104).

The fourth chapter may be said to be concerned with moral institutions as embodying and enforcing moral valuations. The chief forms of these are moral maxims (commandments, and the

[1] *Cf.* MIND, *l.c.*, pp. 426-27.

like), Custom (*Sitte*) and Law (*Recht*). The relations between these are dealt with at considerable length, and in a very instructive way.

The fifth chapter deals with the more purely individual aspects of the moral consciousness, the place of conscience and kindred topics. In this connexion some reference is made to the place of the Beautiful and of Fine Art, as having significance for the inner life of the individual; and it is contended (p. 172 *sqq.*) that what Ehrenfels quaintly describes as a certain 'minimum of metaphysical conviction' is necessary for the full realisation of the moral life of the individual. From this point of view religious convictions may be valuable as working hypotheses, even if they are not wholly in accordance with truth; and to expel them for a 'metaphysical nihilism' would be to 'empty out the child with the bath' (p. 184). Even in the interests of truth itself such a procedure might prove suicidal. If the Ptolemaic Astronomy had simply been rejected as not being completly true, it is probable that men would never have reached a true theory of the heavens at all. Truth can only be reached through the gradual polishing of our hypotheses. All this is no doubt instructive; but would it not be well to urge, in connexion with it, that our provisional hypotheses, metaphysical or other, should at least be as true as we can make them? Should it not be borne in mind also that, besides acceptance and rejection, there is such a thing as suspense of judgment?

In the sixth chapter Ehrenfels is brought back to the idea of absolute value as contained in the popular moral consciousness. The tendency of the popular consciousness to attribute absolute value to moral distinctions is connected by Ehrenfels with the ideas of responsibility and freedom. Kant has best brought out the Logic of the position. The 'ought' implies 'can'; and the idea of absolute freedom leads inevitably to the idea of absolute law and through that of absolute value. But if we acknowledge the relativity of the 'ought,' we may avoid these consequences, and the conception of absolute value becomes unnecessary.

The seventh chapter contains some concluding remarks, largely bearing on the practical value of ethical speculation. The science of Ethics, Ehrenfels contends, is partly theoretical and partly practical. The theoretical part may be divided into the general and the special. His own work, so far, is concerned with general theoretical Ethics. More special treatment of Ethics might be carried on in a descriptive and genetic manner. To this should be added the more directly practical part of Ethics. "Our rejection," he says (p. 260), "of the hypothesis of absolute value precludes the view of Practical Ethics as an absolute normative discipline with imperatives of a strictly universal binding force. Still, the imperatives of practical Ethics distinguish themselves from those of all other practical disciplines in this, that they possess an almost universal applicability in fact. The applicability of the

imperatives of Pædagogy, of Therapeutics, of Bridge-building, and the like, depends on the presence of certain desires, and is quite absent in the case of those who do not wish to teach, to heal, or to build bridges. . . . Now the applicability of the imperatives of practical Ethics depends in like manner on the presupposition of certain actual desires . . . ; but these desires differ from those implied in other practical disciplines in this respect, that they are in some degree present in every normally constituted and fully developed human being, though not always with the same completeness and force, and moreover that they are present not only as bearing on the individual's own conduct but also on that of all his fellow-men. In this last point the other practical disciplines present no real analogy, for no impartial spectator demands that another shall be a teacher, a doctor, or a bridge-builder; but each one demands that every other shall fulfil the requirements of Ethics." In order, however, to see what the requirements of Ethics are, it is necessary to take account of all the conditions of human conduct, and no one investigator can have a complete survey of these. Hence the statesman, the poet, and others will often be able to contribute as much to the actual determination of the best modes of conduct as the theoretical student of Ethics, whose contributions to practical morality must in all cases be of a very modest character. In general the important point for practical purposes is to understand the process of development as it is actually going on, and to cultivate that 'love of development' to which reference has already been made as one of the most valuable moral dispositions (pp. 254-55). All that Ehrenfels says on this point seems admirable; though it might perhaps have been made somewhat clearer if he had distinguished between the purely *normative* aspect of Ethics (as defining a standard) and its more strictly *practical* aspect (as seeking to guide conduct).

It must be apparent, even from this brief sketch, that the work of Ehrenfels is one of great interest and importance. And, indeed, the reader would probably find it much more interesting than such a sketch as this would suggest; for the power of Ehrenfels, as of some other Austrian writers, seems to appear most conspicuously in the elaboration of details—an elaboration that interferes perhaps at times with the clear presentment of fundamental ideas, but that is seldom without a real interest and significance. Apart from such interest in detail, however, the work of Ehrenfels has a peculiar importance in being probably the most systematic attempt that has yet been made to deal with Ethics as a branch of the theory of value. Such an attempt seems to the present reviewer to be full of significance. I am not, indeed, prepared to say that the idea of value is essentially the most fundamental conception in Ethics (as it may be in Economics). It is probable that the idea of an end or good will be the most persistent in ethical speculation, as it was the earliest. But at present there are some obvious

advantages (besides the freshness of relative novelty) in approaching Ethics from the point of view of value.[1] The idea of an ultimate end or good is apt to lead too suddenly into the quagmires of metaphysic, or else to be interpreted in some quite inadequate biological way. The idea of an absolute law is still more misleading; and Hedonism, if it is not interpreted as a theory of value (as to all intents it is by such writers as Sidgwick and Gizycki), seems to be nothing but bad psychology. The theory of value keeps prominent the important idea that the good in Ethics is a good for us (something, in Aristotle's phrase, that is πρακτὸν καὶ κτητὸν ἀνθρώπῳ), while at the same time it leads us to think of an objective end. Yet the attempt to construct Ethics on the basis of a theory of value is not free from danger; and it does not appear to me that Ehrenfels has been quite successful in avoiding its perils.

The first danger, I think, is that of forgetting that value implies a point of view. Ehrenfels seems too ready to pass from the idea of value to that of simple desire. It may be true that all desire (and indeed even all feeling) implies the presence of an inchoate idea of value; but definitely to value is much more than to feel or desire.[2] It implies some estimation of the object felt or desired in relation to some system to which it belongs. It implies, in short, some idea of a good. Hence I am doubtful whether, after all, the substitution of the idea of value for that of the good does not simplify the problem only by obscuring its ultimate nature.

Another closely related danger is that of interpreting value in a purely subjective way. What has value must be valued or be capable of being valued from some point of view; but does it follow that value is constituted simply by valuing?[3] This of course is essentially the problem that is discussed by Ehrenfels when he asks whether there is any such thing as absolute value. But I think the problem is to some extent misconceived by him. "By absolute values," he says (vol. ii., p. 191), "we are to understand such as in their character as values are independent of every actual change of desire." Now, if this is what we are to understand by an absolute value, Ehrenfels may be right in denying that there is any such thing,[4] just as Aristotle may have been right in throwing doubt on Plato's absolute good. In like manner one might throw doubt on the possibility of absolute truth (something whose truth is independent of the point of view from which it is regarded), or absolute beauty, or any other kind of absolute. But it is strange how utterly one half of the thinking world does not know how the other half philosophises. One would have thought that, since the time of Kant, absolutes of this sort had been a little out of fashion, and that their place had been taken by the relative absolute. To deny that there is any absolute

[1] *Cf.* MIND, *l.c.*, p. 447.
[2] *Ibid.*, p. 428.
[3] *Ibid.*, p. 441-42.
[4] *Ibid.*, p. 442.

value, in the sense defined by Ehrenfels, is not to deny that value is objective, and has an absolute validity from any given point of view. And if once we recognise this, then again the great question comes to be—What is our point of view? This is the question, as it seems to me, that Ehrenfels has not sufficiently faced. If he had faced it, his treatment no doubt would have become metaphysical rather than psychological, and would have opened up fundamental problems that he has sought on the whole to avoid. But I venture to doubt whether, without facing such problems, there can either be an adequate theory of value or an adequate doctrine of Ethics.

Still, we have every reason to be thankful for what Ehrenfels has given us; and we shall have still more reason for gratitude if he goes on, as he seems to promise, to apply his theory of value to some practical problems of life, and especially to those of economics. For such a task his gifts and training would seem to fit him in a pre-eminent degree; and I for one shall look forward to this part of his work with the most eager anticipation.

J. S. MACKENZIE.

Aperçus de Taxinomie Générale. Par J. P. DURAND (DE GROS). Paris: Félix Alcan, Editeur, 1899. Pp. 265.

To judge from the list of M. Durand's works, the earliest of which bears date 1866, he must be a veteran free-lance in the borderland between philosophy and biology. He describes himself in the book before us as *un vieux paysan aveyronnais courbé tout le jour sur sa charrue;* no doubt a pleasant exaggeration, which disposes us however to listen with attention to his views on the method of natural history.

The author has been strongly impressed by the neglect both of naturalists and of logicians to study the general types and laws of the methods of classification which Science attempts to apply. The "true," "rational" or "natural" system is the object, he urges, of endeavours which are riddled with incoherence because no clear understanding prevails as to its nature. M. Durand considers himself no more than a pioneer towards the establishment of a general science of classification.

The main argument is as follows:—

The elementary form of all classification is the series, which depends on the increase or decrease of some "variable". The nature of this variable determines the nature of the series, and in the abstract all series are reducible to certain types, which constitute the Taxinomic[1] Categories, and on each of which is founded a true Taxinomic Order. Of these Taxinomic Orders the author distinguishes four, his enumeration depending on an empirical review of the field.

[1] I observe that English writers prefer the spelling Taxonomy and Taxonomic. I follow M. Durand.

The first is the Order of Generality[1] or of Resemblance, otherwise called the metaphysical order, because its higher terms, if not all its terms, are theoretical or fictitious objects, and not actual things. It depends on the varying Resemblance between objects, and this Resemblance is in the ratio of the proportion of common characters which unite them. This Taxinomic Order is familiar to us in the relation between genera and species. M. Durand expounds it with extreme clearness, providing diagrams which represent the superposition of characters in each actual object as well as the coalescence of the common characters into ideal groupings or classes. The actual objects, he is careful to remind us, appear in the base line only, and not at all in the vertical succession. Strictly speaking, indeed, they are driven underground, and we work from the species upwards. It is to be noted—and the fact prepares us for reservations to be made below—that the author embodies in his account of this order the "inverse proportionality of extension and comprehension" in its sharpest form.

The second Taxinomic Order is the Order of Composition or Collectivity, which is founded on the relation of whole to part and part to whole. Its objects, higher and lower alike, are actual concrete objects, herein differing from those of the previous order. M. Durand holds that equivocation arises in Science and Philosophy by confusing three usages of the words general or universal; one belonging to the previous order, in which they represent the relation of a genus-idea to its species; and two belonging to the present order, in which they represent (*a*) the relation of the actual compound whole to its actual component parts (the "real comprehension" of a collective name, as the body is the universal of its members), and (*b*) the relation of "the part" in a homogeneous actual compound whole to the whole, as the cell is the general element of the body (the "real extension" of an element).

The juxtaposition of the relation of genera and species and the relation of whole and part is the suggestive side of the author's very sharp distinction between them—a distinction, it will be found, which he is not always able to maintain. From Lotze downwards a good deal has been done of late years to undermine the rule of inverse proportionality between extension and comprehension, and the modification of this rule affects the alleged unreality of the higher terms in generic generality, so as to open a bridge from connexion by resemblance, to connexion by determination in an actual whole,—from imitation to constructive cooperation. In the generic sense, M. Durand observes, "we may say of Humanity that it is present and entire in each of us; in the collective sense it is a totality"; and he finds analogous meanings in Animality. It is interesting to compare this with

[1] The term Generality will recur in a different sense in the account of another Order, and it would have been better to call this the Order of Generic Generality.

Lotze's remark[1] on "our habit of representing to ourselves the countless multitudes of mankind not merely as instances of their genus, but as parts of Humanity; in the case of animals the peculiar ethical reasons which bring this about are wanting, and we are not in the habit of speaking in the same sense of 'Animality'". The most faithful votary of formal Logic must be startled, I think, when he is told that Humanity, even as a nature or content, is "present and entire in each of us". The question arises whether we can have even our *generic* nature except as *parts* of *a whole.* The question of the reality and individuality of universals is underneath the entire discussion, and M. Durand has some shrewd remarks affecting it. Within the Order of Composition itself the Order of Resemblance appears in various degrees, and as it fades the co-operation of parts strengthens. M. Durand notes this point, but does not observe how the substitution of Identity for Resemblance would bear upon it. However, there is no doubt that a confusion is possible between the *prima facie* senses of generality as above distinguished, and M. Durand thinks that he has convicted both Littré and Bichat of errors in this sense.

The third Order is the Order of Hierarchy—the relation of rank between heads or centres of units, which are themselves related in order of Composition, as, in the Army, the Generalissimo to the Generals of Divisions. Passing from this, which seems to me unimportant, we come to the fourth type of series known as the Order of Genealogy and of Evolution, which depends on relations of kinship (*Parenté*), under the three species of Ascent, Descent and Collaterality. Like the Order of Composition and the Order of Hierarchy, the Order of Genealogy deals throughout and exclusively with the actual objects to be classified "which occupy and constitute without exception the *cadres* of the table of classification". In this point, as we have seen, there is *prima facie* an absolute difference between these three orders and the Order of Generic Generality. The chapter on the Genealogical Order ends by stating the question whether a first ancestor in the Genealogical Order can also be the genus of his descendants considered as species in the Generic Order. The provisional answer is that this may appear to be the case, but only through an equivocation by which the nature or content of the common ancestor is confused with his actual individuality. Passing over discussions of some interest we will now pursue this question as it is further treated in the chapter on Natural Classification.

The problem of Natural Classification on the Evolutionist hypothesis is here treated as = the problem of combining a "Generic" with a "Genealogical" Classification. If the genealogical facts could be represented by a progressive linear series of the type of the *chaîne des êtres*, a generic classification could be applied to this by simply dividing the series into segments of the greatest

[1] *Metaphysic*, p. 179, Engl. transl.

resemblance. Some such recurrence to an obsolete arrangement is imputed to Hæckel by the author in a passage of detailed criticism.[1]

But the series is not linear. The organic form, which, in degree of evolution or organisation, might be the common ancestor of all living beings, coexists on the same genealogical level with the "higher" forms of life, as their remote cousin. If the classification is to be genealogical, such a form must appear in it at two extremes, as common ancestor, and as a collateral "uniplane" with existing forms.

Admitting thus, then, the facts of collateral kinship in their fullest extent, can we make a genealogical arrangement coincide with a generic classification? M. Durand does not deny the possibility *in toto*, but points out a number of difficulties.

i. The Ancestor's name, if it is to stand for a class, must imply an essential transmissible character; thus "Vegetable Monera" could not be a general name for all vegetable organisms.

ii. It is conceivable that the "essential" quality may fail—an Invertebrate species might spring from a Vertebrate one. The ancestor of the Reptiles could hardly be called by a name which would serve as a general name to include Birds. Regression, Convergence and the like, enhance this difficulty. It may be noted as to this that in any case the common ancestor in such a system must have his descendants' character read back into the meaning of his name, *i.e.*, must have a sense put upon his name which his given qualities do not bear out. A true view of connotation shows us this at once. To make the actual qualities of the animal Monera (calling it "Animal" *par excellence*) the universal of all the qualities of Animals, would be just like understanding the connotation of "Animal" to be the remainder, after all attributes in which animal species differ, such, for example, as intelligence, had been omitted.

iii. The author asks whether the generic name in a natural classification *does* always imply a single mother species; adducing such cases as the common character of the Greek dialects or the Slav languages. From the mere common character, he urges, we cannot tell whether we may infer an actual "absolute" Greek, or an actual individual "Slav" language, as respective common ancestor.

iv. By a sort of converse supposition to i., if the meaning of the actual common ancestor's name is confined to his given qualities, and nothing read back into them, then he will be very close to his

[1] Hæckel, I gather from M. Durand, shows a genealogical tree with its trunk divided into four vertical segments, each named after a general division of the animal world. He also gives a list of kinds in linear order. A list must be linear, and should be interpreted by the genealogical tree (see *e.g.* Lankester, art. Zoology in *Enc. Brit.*); but it is a question if the tree trunk can represent actual animal species (see below).

mother species and to his collaterals, and the great kingdoms of the living world will fail to be discriminated. *E.g.* the Primordial Monera, the Vegetable Monera and the Animal Monera, would appear as three but slightly differentiated species. If then their natures are construed as class ideas including their descendants, the whole animal and vegetable world would be brought within a single genus.

It appears to me that votaries of Natural Classification never make any real attempt, such as the author suggests, to combine genealogical and generic orders by erecting the names of common ancestors into names of kinds. And it seems plain that such an attempt would meet with the difficulty indicated above, and emphasised by Dr. Edward Caird in dealing with the evolution of religion, *viz.*, that by cutting down the essence of great class ideas to the actual given qualities of the least evolved species within them, all real grasp of their nature is sacrificed. On the other hand, to read into the names of undeveloped species the universal scheme of qualities which we have gathered from their higher descendants, seems to involve falsification of fact. It may be said, therefore, that to combine genealogy and generality, according to M. Durand's idea of the combination, is impossible. The trunk of the evolutionary tree must stand, as Huxley says, for a general plan of structure (*Enc. Brit.*, art. Evolution). But if so, in what part of such a diagram are the common ancestors represented? We have just seen the difficulty of supposing the trunk to represent *both* actual species *and* a common plan.

I do not think it results from what has been said that a generic classification, following the affinity of descent, is an illusion. It only results that the essence of such a classification cannot be expressed through proper or specific names strictly designative of common ancestors. It is plainly conceivable that the principle of heredity may be the true controlling universal, although in a given common ancestor its possibilities are not made explicit. No one who is familiar with a good natural classification will easily withdraw himself from the conviction that he is dealing in it with the differences of a true governing universal; and his belief will be confirmed rather than weakened by the fact which M. Durand emphasises, that the tendency of such classification is to go behind obvious similarities in looking for presumptions of affinity; to replace, as I should say, the superficial perception of resemblance by the analysis of identity in difference, pointing ultimately to the unity and differentiation of parts in a whole. In any case M. Durand's work is full of suggestions and remarkably lucid. Perhaps it is somewhat tinged with the idea that the laws of classification can be studied in advance, apart from the special investigation of the matter to be classified. This remark applies especially to the final chapter on the classification of the sciences.

BERNARD BOSANQUET.

Instinct and Reason. An essay concerning the relation of Instinct to Reason, with some special study of the nature of Religion. By HENRY RUTGERS MARSHALL, M.A. Macmillan Co., 1898. 8vo. Pp. xiii., 574. Price 12s. 6d. net.

THAT 'the half is greater than the whole' is in brief my impression of Mr. Marshall's book. Its core of psychological thinking I take to be sound enough. That core, however, is enveloped and overlaid by metaphysical and anthropological doctrine of so questionable a character that, in my humble opinion, this careful and laborious piece of writing must be judged to have virtually failed in its general aim and purpose. It may be, of course, that the 'whole,' the general purpose, ought to be condoned as having been the efficient cause of the 'half,' as having led the author to turn his attention to psychology. Surely, however, as readers of the last ten volumes of MIND will already be aware, his analytic faculty is by this time mature enough to exist by and for itself. If I might venture to advise him, therefore, I should urge him either to confine himself to a field that is certain to yield him fruit, or, if the fruit he covet be some far-reaching application of his psychological lore, to undertake a more critical survey of his ultimate postulates, and to carry his study of the history of mind considerably further in the direction of the concrete.

From the title of the book it might be presumed that its subject was concerned with the respective natures and mutual relations of Instinct and Reason. The preface, however, informs us that the fundamental purpose of the essay is to "present" a certain conception of Religion, the distinctively psychological questions raised in the course of the argument being dealt with in strict subordination to this end, and, in so far as they involve technical treatment, relegated to certain special chapters. In some of these the writer fully establishes his claim to rank as an "analytic psychologist". In other no less technical chapters, however, he assumes the more doubtful *rôle* of "biological psychologist". Such an one, apparently, is he who stands back from the results of his introspection and tries to take, as Mr. Spencer would phrase it, a "Biological View" of them. Now in so doing he is aiming at far more than what the author would term the "objectivication" (*sic*) of his own personal experience by comparing it with the indirectly apprehended experiences of his fellow-creatures. His dream, in fact, is no less than to describe all the activities of human life, physical and mental, in terms of what he takes to be their biological unit, namely, the reaction of a living cell to the stimulus received from its environment. Plainly such a task, were it possible, would involve 'objectification' with a vengeance. Possible or not, however, it is precisely this task that Mr. Marshall attempts. The inevitable consequences he boldly faces. He asserts the "parallelism" of mental and neural action (such parallelism, however, being held not incompatible with a certain

"dependence" of the former on the latter); and approaches the highest manifestations of human spontaneity from the standpoint of the "logical determinist". He brings human society into line with the primordial cell by maintaining the doctrine of the "social organism". He proclaims "the relativity of ethical codes"—with needless asseveration, considering his other principles. For the rest, he pins his faith on the evolutionary, or "genetic," method, which he opposes to that of "rationalistic philosophy". Throughout, however, there appears to be lacking a sense of the assumptive character, of the purely methodological significance, of these fundamental postulates. In an isolated passage, indeed, he says: "I have no quarrel with metaphysical doctrines of the Absolute, which may be true without at all interfering with the conclusions which we as psychologists here reach". He is truer to himself, however, when in his opening chapter he rejoices over "the curbing of rationalistic confidence" that the present century has witnessed, and associates the charge of committing "metaphysical excesses" with the name of Kant. The fact is that he seems to have no notion how 'excessively metaphysical' his own system is, though after the fashion not of Kant but of Mr. Spencer. Just as Mr. Spencer, after the parade of an absolute Unknowable, proceeds to invest with seeming absoluteness a series of materialistic hypotheses affiliated by means of a loose deductive process that for the most part begs its preliminary inductions and shirks its verifications, so Mr. Marshall, despite his professions of distant regard for the Absolute, succumbs to the fascinations of final synthesis, and adopts an order of would-be explanation that effectually sacrifices the authority of his psychological facts to the pretensions of his biological fancies. Surely his duty 'as a psychologist' was to keep biology and "rationalistic philosophy," if not at arm's length, at any rate at one and the same convenient distance. Should these be found to supply him with incompatible assumptions, his metaphysical insight, nay, his knowledge of the logic of his special subject, ought to inform him that this was no bar to the discovery of the purely relative truths which every science, and notably a science of 'bridge-work' like psychology, sets forth to seek.

I would that I had space wherein I might expose the one-sided nature of the conclusions which biological proclivities and the striving after impossible consistency and finality have forced upon the writer, and yet do justice to the cleverness, the brightness, and the originality of his argument. As it is, I must trust readers of MIND who are acquainted with Mr. Marshall's previous record to accept my summary exposition and criticism of his views with the necessary reservations.

His psychology begins and ends with the cell. Organisms are either cells or systems of cells. The typical modes in which an organism responds to the normal stimuli of the environment are its "instincts". In the case of a system of cells (whether polype

or social organism) its instincts are the typical modes in which it reacts as a system. To these "instinct actions" the reactions of the component cells, or "elements," are strictly subordinated, given normal stimuli. If, however, the stimuli be "hypernormal" (*sic*), the component elements will abandon typical reaction for a purely self-regarding line of behaviour. The stomach, for instance, if morbidly stimulated, will defend itself with excessive vigour to the inconvenience of the man. Such individualistic action on the part of an element is, according to Mr. Marshall's wide rendering of the term, "reasoned". "Reasoned action," in fact, is "instinct action" of a special type, namely, the self-preserving action of the part as against the good of the whole. Instinct and Reason thus exclude one another just in so far as the interest of the system conflicts with that of the element when under abnormal conditions its action becomes "variant," that is to say, selfish.

Such being the groundwork of Mr. Marshall's scheme, where, then, do Man and his Religion find a place therein? The man is the element, his social group the system. He has individualistic instincts (the chapter on these is one of the best in the book) and social instincts (whereof choice examples borrowed from the author's list are those that make for Imperialism and Economic Protection), together with sexual instincts that, facing as they do in opposite directions, namely, towards the gratification of passion and towards the cherishing of wife and child, occupy a sort of middle station. Given normal circumstances, then, his various "instinct actions" will, one and all, subserve the interest of the system, the social group. But man's circumstances never are normal. For one thing, the circumstances contemplated by Nature in organising and perpetuating man's racial instincts are a kind of abstract of those encountered by countless past generations, an abstract constantly revised it may be, but one for all that never fully adequate to the circumstances of the moment. (Mr. Marshall is disappointingly reticent on the subject of Heredity, but this must be what he means by making the organisation and force of instincts so much a matter of their age.) Moreover, the social group is a low and incoherent class of organism at best, and its "elements" are easily tempted by stress of events into anarchy and "variation". Thus, despite Conscience, a sort of ethical indigestion, Reason has a merry and a busy time of it, its function being simply and solely to "emphasise" all such "variant" influences. On the other hand, however (and here we are strongly reminded of Mr. Kidd), a diverse tendency may be observed at work with intent to neutralise the sway of Reason by emphasising the social instincts and inciting them to assert their natural and normal superiority. This tendency is Religion, itself an instinct, according to Mr. Marshall's terminology, but one of a peculiar regulative type, inasmuch as it is not, like one of the specific social instincts, an instinct to be good—that is, to subserve the interest of the group—but an instinct *to try* to be good. And at this point,

before I dwell further on this conception of Religion, I would fain wind up my polemic against Mr. Marshall's general methodological position. So long as we are dealing with the more definite and invariable instincts of man, notably with his individualistic and sexual instincts, the suggestive analogy of stimulus and cell-reaction serves well enough as a logical base of operations. As we move forward, however, to ever more complex and inconstant social tendencies, the light shed by the analogy grows steadily fainter. Finally, when we arrive at forces like Reason and Religion that stand apart from, and above, the specific instincts, and supply pure "emphasis" to tendencies already of their own right active, "Parallelism" seems played out, and we yearn for a new and opposite analogy—Mr. William James' notion of consciousness "loading the dice," or something even more explicitly "rationalistic" in phrase and import. No wonder then that the writer's consistency breaks down; that we are startled by homely turns of expression that will not conform to the formal demands of the argument (for example, when "common sense" is said to refuse to listen to "reason" when it tries to part young lovers); that we are surprised though delighted to find 500 pages of the most ingenious 'reasoning'—for surely it is that, or would be that—lead straight to the conclusion (printed in capitals) "Be religious". The fact is that here at the entrance of the stronghold of Mind there be locks a many needing as many keys to fit them. To dream of a skeleton-key that shall open them all is pardonable enough. To forge and apply one with reckless intent in the present state of our knowledge is philosophic house-breaking.

There remains a word to be said concerning Mr. Marshall's conception of Religion on its anthropological side. That he is no expert in matters anthropological is plain from the preface itself, where he terms the study of the genesis of religious customs and beliefs "a field which has perhaps been already sufficiently explored". It is a pity, then, that (despite a professed ignorance of Origins) he should dispute with "Tyler" (*sic*, as also in the Appendix) as to the "origin" of fasting, theorise about the way in which "the act of circumcision may have been at first performed," and so on. As to his main doctrine, that Religion is a sort of withdrawal of self from individualistic influences, so that the "voice" of conscience may make itself heard, he ought either to have given at least some passing consideration to Mr. Tylor's weightily delivered judgment, that "the connexion between Morality and Religion is secondary and late"; or else, if he prefer to set up Validity against Origin, and argue from what Religion has become, let him abstain from fancy sketches of primitive religion with its "established phallic church" and the rest. There may be something, of course (though personally I doubt it), in the view that the hallucinations of the savage medicine-man are prone to take an ethical turn. Such a view, combining as it does the two more or less disparate halves of Mr. Lang's latest anthro-

pological work,[1] is at least in the forefront, if not a bit ahead, of the time. To make it at all plausible, however, Mr. Marshall must study far more "folk-lore" than that which he discovers in the Bible. He is a psychologist of considerable distinction; but *ne sutor* . . . R. R. MARETT.

Psychology and Life. By HUGO MÜNSTERBERG. Boston and New York: Houghton, Mifflin & Co. Pp. xiv., 286.

THE essays reprinted in this volume have for the most appeared in the *Atlantic Monthly*, and this perhaps explains, if it does not excuse, the combination of a popular tone with professorial dogmatism which its discussions display. The style forms another stumbling-block. It was hardly judicious for Prof. Münsterberg to 'commence author' in English with a work whose semi-popular character renders any deficiency in his power over that medium of expression much more glaring, and he should at least have chosen his literary advisers among his colleagues in the English department of Harvard University, instead of leaving to his laboratory assistants the "helpful retouching of his language". As it stands, the book reads like a bad translation from the German, of which tongue the English reader desirous of understanding it, will require a competent knowledge, and it is to be feared that in spite of Prof. Münsterberg's assurance (p. x.) that "I do not want to entertain by these papers," his "unamusing book" will provide not a little involuntary entertainment to the aforesaid personage.

Prof. Münsterberg's literary audacity is well matched by his scientific pugnacity. His avowed purpose is polemical; "I want to fight" he frankly declares in his preface, nor is it possible to mistake the warlike ardour which has been engendered in him by the action of the new American imperialism upon the military instincts of a German. Whether he will be able to show as much stomach for the fight after his adversaries have replied, must remain to be seen. Still, as he only desires to fight, it is possible that he may have an equal appetite for battle whatever the issue, and in that case, if his critics do their duty, it is conceivable that his ideas may be so licked into shape that his enterprise may turn out to have been at least subjectively worth adventuring. A person so valorous and aggressive must needs be pachydermatous to criticism; but it will be surprising if, after reading the replies he is sure to provoke, Prof. Münsterberg does not regret that he did not show rather more discretion in choosing his fighting-ground, before proceeding to run amuck in the philosophic world.

For certainly the metaphysical basis from which he starts in all his arguments, appears to need a good deal of explanation, if not of justification. It is best stated in the attempt at a classification of the sciences on p. 205. Psychology, we are told, is the

[1] *The Making of Religion.* Longmans, Green & Co. 1898.

science of the individual objects, physics of the over-individual objects, while the normative and historical sciences are respectively concerned with the over-individual and individual will-acts. The sciences of the first group are naturalistic, and demand mechanical causal connexions to the exclusion of all freedom; those of the second are teleological and free and exclusive of causal connexion (p. 211 *et passim*). The latter deal with the real world of the inner life which alone has value, and for which the "causal view has not the slightest meaning" (p. 266), while the former are systems of the laws into which the reality is transformed for the purpose of description, a purpose which is fully attained only when psychical events have been conceived as dependent on brain motions. The real life on the other hand is wholly will, and out of time (p. 279), deathless or 'immortal' (p. 280) and non-existent (pp. 24-25); its 'transformation' is unreal, for "whatever is thought as existing cannot have reality," but psychology is nevertheless bound to perform this operation if it is not to be ruined (p. 183).

Such is the basis on which Prof. Münsterberg supposes himself to erect "a scientific synthesis of ethical idealism, with the physiological psychology of our days," and from which he proceeds to prolix discussions of the relation of psychology to life, physiology, education, art, history and mysticism. The results are, as might be supposed, sufficiently curious, if not always entirely consistent (*cp.*, *e.g.*, pp. 14 and 270). They derive their importance from the fact that Prof. Münsterberg is the representative of the 'experimental' psychology in the leading American university, and *quidquid delirant reges, plecturntur Achivi.* Moreover it behoves us all to realise with what barbarisms the fashionable developments of a naturalistic psychology threaten philosophy. To be informed that scientific psychology *cannot* recognise a will or personality, and *must* reduce all psychic events to atomic sensations, while at the same time real life is wholly volitional and a realisation of purposes (which are nevertheless declared to be out of time), that a causal and a teleological explanation of events are incompatibles, that any attempt to avoid such conclusions is unscientific and inadmissible, all this is surely calculated to arouse the calmest. Yet Prof. Münsterberg is by no means himself one of the untutored savages, innocent of the least comprehension of philosophy, who roam over the wide stretching laboratories of the new psychology, and fancy that the solution of all philosophic questions is to be looked for from some physiological experiment. He sees that psychology cannot take the place of logic and ethics, and that in common with all scientific doctrines its methods have ultimately to be subjected to metaphysical criticism. In fact it is just because he recognises the inadequacy of mere psychology and aspires to transcend it by means of a metaphysic which draws its inspiration from Schopenhauer, and, more remotely, from Kant, that he arrives at the paradoxes and

absurdities which render his conclusions unacceptable to all parties and from every point of view. If he had attempted less, he would have confined himself to a definite plane of psychology, if he had pushed his philosophical analysis one step further, he would have seen the way out of the difficulty which forces him into a *reductio ad absurdum* both of psychology and of 'the real life'.

The root of all his errors is that he misconceives the nature of a methodological assumption. It is quite true that the point of view of psychology, as of every science, is abstract, and involves a disregard of all such aspects of the reality as are not germane to the purpose of the particular scientific contemplation. But so long as its nature is clearly apprehended, the inadequacy of any such assumption does no harm. And in no case does it justify a schism in the universe of our experience after the manner Prof. Münsterberg proposes. What he has forgotten, or has never realised, is that the assumptions of the special sciences may and must receive reinterpretation before their results can take their place in the total system of thought whereby we seek to understand our experience. And such a final system cannot possibly acquiesce in a separation of reality and existence, worth and science, will and sensation, personality and organism, purposes and causes. Indeed Prof. Münsterberg all but sees this himself. He is for ever telling us that psychology effects a 'transformation' of the actual data of mental life for the sake of its own logical purposes (*e.g.*, pp. 19, 22, 23, 29, 43, etc.). It follows that the sciences of causal connexion are ultimately called into existence by teleological demands, and that their separation from the purposes of the 'real life' cannot be maintained. We are not indeed told what are the logical purposes for the attainment of which the natural sciences have value, but it is not difficult to see that in the last resort the explanation of this point cannot avoid a reference to the practical value of the scientific 'transformation' of our experience. If so, the divorce between science and reality will disappear, the supremacy of practical life must be acknowledged, and the sciences also will find their proper place as means to the realisation of our ends. If for the sake of cultivating friendly relations with the old-established physical sciences, the psychologists at present choose to work with assumptions which are analogous to, or even coincident with, those of physics and mechanics, and if on this account they choose to abstract from the purposive character of mental life and decline to recognise the 'will' *in psychology*, they are perfectly within their rights, and their action should not give rise to misconstructions—still less to philosophic constructions like Prof. Münsterberg's. But they are equally entitled to vary their working assumptions, if they find that the prevalent methods are not able to do justice to all the facts and do not lead to valuable results. Even within the limits of the natural-science view there is a hardly-concealed antagonism between mechanical and biological methods, and good reasons

may be adduced for holding that the latter might prove far more fruitful in psychology than the former have shown themselves to be, while, on Prof. Münsterberg's own showing, the whole group of facts he calls 'mystical' is constitutionally incapable of scientific treatment by psychology as he understands it. As such absurdities cannot be tolerated, it is obvious that other assumptions must be tried, and adopted, if they work well. It is in the interest neither of the sciences, nor of philosophy, nor of practical life, that a narrow-minded and superstitious veneration should ascribe an immutable rigidity to the working methods of any science, and least of all to those of the present day. And a *credo quia absurdum* attitude, when the consequences of inadequate assumptions manifest themselves, is as bad in psychology as in theology. Even if, therefore, all Prof. Münsterberg's antitheses were as sound as they are unsound, they would constitute only a proof of the urgency of a reinterpretation of one or both of the antithetical conceptions. This is a possibility which seems never to have occurred to Prof. Münsterberg. He has, unluckily, got a notion that causal and teleological connexion are exclusive alternatives. The solution is simple; let him reconstruct his notion of a cause, and abandon his belief in its sacrosanctity and infallibility. When he has done this, the irritation which now makes him 'want to fight' will be allayed, and he will cease to provoke convulsions throughout the philosophic world.

F. C. S. SCHILLER.

VII.—NEW BOOKS.

Talks to Teachers on Psychology: and to Students on some of Life's Ideals. By WILLIAM JAMES. New York: Henry Holt and Company, 1899.

IN these talks Mr. James has deliberately set himself to eliminate so far as possible the formal side of psychology. He is careful to guard his readers from expecting too much from his science. He does not go the length of saying that the teacher is of necessity an empiric, but he makes it very clear that the whole value of psychological knowledge to the teacher lies in the power of applying general principles to this or that child at a given moment. To be a good teacher is to be a good practical psychologist: but the converse does not hold. Under these circumstances we are not surprised to find nothing new in the psychology of the volume. Those familiar with Mr. James's writings know exactly what to expect, so far as the psychological ground-work is concerned. What gives the volume its value—in addition to the brilliant style in which the author cannot help expressing himself—is the insight it gives into the principles of applying psychology to life in general, and to teaching in particular. It is greatly to his credit that our author makes such restricted use of what he modestly calls the Lange-James theory of the relation between emotion and expression. Readers of his *Principles* cannot fail to be struck by the difference of his treatment of this subject in comparison with all the other subjects he handles. Elsewhere he is the outside critic—sympathetic and interested no doubt, but still outside—here he becomes, for the time being, a pleader. This being so, we cannot too much praise his self-restraint in limiting his use of this theory to a single chapter in a book in which it might have legitimately bulked very largely; for few theories in psychology have anything like the importance that this theory may fairly claim in education. The theory itself has been already examined in these pages, and, while we cannot accept it, we are convinced that there is no intelligent teacher who does not wish he could. Further, while in the ultimate resort the theory must be held to be false, it is supported by so many arguments that as a practical hypothesis it is not without its value in guiding teachers. Few, we think, will be found to dispute the practical conclusions arrived at in the chapter on "The Gospel of Relaxation".

The book is probably hardly dull enough to satisfy teachers on this side of the Atlantic, but they may rest assured that it is accurate so far as it goes, and that it goes a great deal farther than many much duller books.

Psychology in the Schoolroom. By T. F. G. DEXTER and A. H. GARLICK. London, New York and Bombay: Longmans, Green & Co., 1898. Pp. viii., 413.

There is in this book a good deal too much of the schoolroom—especially of the schoolroom during examination—and a good deal too little

psychology. As educators, the authors have something to say; as psychologists, they have simply furnished a compilation of the opinions of Bain, Spencer, Sully, etc., without regard to system or even to uniformity of terminology. One must not demand everything of a text-book; but one may demand knowledge of the great current issues, and Messrs. Dexter and Garlick appear to be wholly unfamiliar with the work of James, Stumpf and Wundt.

The chapters are entitled: Physiology and Psychology; the Three Phases of Mind; Attention; Sensation (organic senses, taste, smell); Perception (senses of sight, touch, hearing); Observation; Development and Training of the Senses; Memory; Imagination; Conception; Judgment; Reasoning; Apperception; Psychological Basis of the Kindergarten System; Feelings (egoistic, social) and Sentiments (intellectual, æsthetic, moral); Will; Habit; Character; Discipline. There are sixty-four figures in the text, most of them well-selected and useful. Every chapter ends with a summary and a list of questions, and an appendix contains specimen examination papers. Indeed, what one may call the mechanical side of the making of the book is excellent. But neither will it help the reader to become a psychologist nor does it furnish the outline of a modern system of psychology.

General Physiology: an Outline of the Science of Life. By MAX VERWORN, a. o. Professor of Physiology in the University of Jena. Translated by F. S. LEE, Adjunct Professor of Physiology in Columbia University. With 285 illustrations. London and New York: Macmillan & Co., 1899. Pp. xvi., 615. Price 16s.; $4.

Prof. Verworn's *Allgemeine Physiologie* (1894, second edition, 1897) is an excellent book in the German, and no less excellent is Prof. Lee's translation. We are glad to call the attention of psychologists to it, and heartily subscribe to the words of the translator's preface: "The work has been welcomed by European and American biologists, who have felt the need of a review and summary of the rapidly accumulating details of cell-physiology, and its ability and suggestiveness have been widely recognised. Many of the special views of the author have encountered opposition—a fact that, perhaps, is indicative of their value—yet, however much we may agree or disagree with him upon special points, we must all acknowledge his breadth, and be grateful to him for presenting such a wealth of facts, and for pointing out so clearly the possibilities of research." Prof. Verworn's well-known *Psychophysiologische Protistenstudien* (1889) is a guarantee of his interest in, and familiarity with, fundamental psychophysical problems. The present volume contains a bibliography and a good index.

The Principles of Biology. By HERBERT SPENCER. Vol. i., revised and enlarged. London: Williams & Norgate; New York: D. Appleton & Co., 1898. Pp. xii., 706. Price 18s.

We are glad to add our voice to the general chorus of congratulation which has greeted the veteran author of the *Synthetic Philosophy* on the appearance of this second edition of vol. i. of his *Principles of Biology*. Additions of prime importance have been made to the text of 1864. We find new chapters on Metabolism, on Structure, on the Dynamic Element in Life, on Cell-life and Cell-multiplication, on Genesis, Heredity and Variation, and on Recent Criticisms and Hypotheses. The chapter on the Arguments from Embryology has been for the most part rewritten.

Two new Appendices contain a summary of the evidence for the Inheritance of Functionally Wrought Modifications, and an essay upon Spontaneous Generation and the Hypothesis of Physiological Units. The most interesting of these additions, to the philosophical reader, will probably be the arguments alleged in favour of 'direct equilibration' and the discussion of the nature of life. Fuller notice is reserved until the publication of the second volume.

The Dawn of Reason: Mental Traits in the Lower Animals. By J. Weir. New York: The Macmillan Co., 1899. Pp. xiii., 234. Price $1.25.

Comparative psychologists fall into two classes: the credulous and the sceptical. Dr. Weir, who belongs to the former category, and holds that "intelligent ratiocination performs an important *rôle* in the drama" of animal life, has brought together in this little volume a mass of data, gained at first and second hand, which had for the most part already seen the light in the form of magazine articles. This fact may account for the unnecessary repetitions of anecdote that disfigure his pages. He believes in the development of mind from reflex action, and in the existence of an unconscious as well as a conscious mind. The book before us is principally concerned with the conscious mind of insects.

Dr. Weir is a good observer, but a poor interpreter. Our old friend, the æsthetic spider, revives under his hands. Adaptation of colour to environment ('tinctumutation') and the homing instinct are referred to 'auxiliary senses'. It is well that, as the Preface states, the author "does not claim infallibility": for *psychos* is not the Greek for *mind*.

Defective Eyesight: the Principles of its Relief by Glasses. By D. B. St. J. Roosa. London and New York: Macmillan & Co., 1899. Pp. 193. Price 4s. 6d.; $1.

This little book is a recasting of the author's *The Determination of the Necessity for Wearing Glasses*, published in 1888. It is a useful and interesting essay, written by a competent man. The volume shows some signs of hasty preparation, both in arrangement and topography: the dioptric system is presupposed until page 172, there are minor repetitions in the early chapters, Salvinus Armatus figures also as Salvino degli Armati, etc.; but these and similar slips can easily be corrected in a second edition.

The work deals with the measurement of visual acuity (test types are given in an appendix); defects of accommodation (presbyopia); errors of refraction (myopia, hypermetropia, regular corneal astigmatism); general asthenopia; and the use of spectacles and eye-glasses.

A History of Physics in its Elementary Branches: including the Evolution of Physical Laboratories. By F. Cajori. London and New York: Macmillan & Co., 1899. Pp. viii., 322. Price 6s. 6d.; $1.60.

This is a simply written and selective history of physical science, "intended mainly for the use of students and teachers of physics," by the author of the *Elementary History of Mathematics*, which we noticed some time since. While it will doubtless serve the purpose towards which it is primarily directed, it may also be cordially recommended to the general reader, including the student of philosophy and psychology. The treatment is by periods: the Greeks, Romans, Arabs, Europe during

the Middle Ages, the Renaissance, and the seventeenth, eighteenth and nineteenth centuries, are taken up in turn. The chief topics discussed are mechanics, electricity and magnetism, heat, sound and light. Magnus and Lord Kelvin seem to be rival claimants for the honour of having established the first physical laboratory.

L'Instabilité Mentale. Essai sur les données de la Psycho-Pathologie. Par G. L. DUPRAT, Professeur de Philosophie, Docteur ès lettres. Paris: Félix Alcan, 1899.

The aim of this book is to place the main results of recent psycho-pathology in their proper philosophical setting. The book is largely a "criticism of categories"; but it is, at every page, informed of the concrete material. It is well-arranged, lucid, and reasoned. The author, starting from the most abstract considerations of space and time and of the ultimate relations of neurosis to biosis, arrives at the inexpugnable unity of consciousness (or rather personality) as the fundamental fact. In passing (c. i., p. 15), he reminds the physiologist that his "plastides" are incapable of self-existence. So are the groups of them that form nerve, muscle, organ, and organism. "Mais n'est-il pas plus aisé de comprendre ce système quand on se dit que chaque élément est un conscience représentative d'autrui?" The solidarity of the "plastides" is the harmony of elementary consciousness. A "hierarchy of nerve centres" is "dans une théorie purement physiologique radicalement incompréhensible" (p. 16). Which is to say that we are concerned with a psycho-physical organisation, and perhaps it is well, as here, to drive this home for the edification of the abstract biologist. But the impression one gets from this chapter is that the "unity" has swallowed up the "diversity" without the "labour of the notion". But M. Duprat rapidly passes to more concrete matters. A centre—nervous or mental—is a synthesis of relations. Time-relations are "constitutive du tout sujet," and, therefore, since this implies distinction, opposition, there is, at the basis of the psychical life "une discontinuité foncière, une instabilité radicale". But, for apperception of perceptions, duration is necessary. The discontinuity is overcome by the concept of "devenir" (becoming, transition, process, growth, activity, evolution: the term is so common through the book that I offer various renderings). With these first principles, M. Duprat finds the normal to lie—not in the average, or general, but—in the ideal, which is system, or systematisation. The morbid is, by contrast, the asystematic, or rather that which does nowise achieve system. "The evolution of a mind presents a progress or a regression, and in this progress or regression a rhythm." This evolution is "the gradual passage by suitable increments (intermediaires convenables) from one state to another more complex or less complex". Psychical states are systematised by the tendency towards an end, a determinate personality, permanent amid changing environment (p. 58). From this standpoint, chap. iii. endeavours to define a psycho-pathological fact. The chapter is good and faces fairly the difficulty of marking off diseased activity from normal function. But the net result is not peculiarly convincing. A morbid mental phenomenon would be: "a conscious moment or a series of conscious moments that by the discontinuity of psychical evolution manifests the law of mental instability to the detriment of the systematic growth of a personality" (du devenir systématique d'une personalité) (p. 77). In part ii., M. Duprat introduces us to "les faits psycho-pathologiques." Mental disease due to the destruction of "a group of inferior elements" (p. 80)

is for the biologist and psychologist; but when "la conscience supérieure perd d'abord son devenir normal," so causing trophic and other troubles, it belongs to the psychologist alone to study "la cause première des psychopathies réelles" (p. 81). This distinction, which is frequently referred to, seems to me illegitimate, unless the author means that, hitherto, the only *physiological* method subtle enough to match the subtlety of the psychical concurrences is, if I may say so, psychological. Taken literally, M. Duprat's distinction would contradict the fundamental assumption of the psycho-physical organism. In this part there is some valuable discussion on effort (p. 86), character and personality (p. 92). "En réalité il n'y a que des maladies de la personnalité." From this we proceed to the pathology of the mental functions—(*a*) intellectual instability, including distraction, delirium, dreams, hallucinations, illusions, anæsthesia, amnesia, troubles of judgment and reasoning; (*b*) instability in tendencies, including certain manias, impulsion, repulsion; (*c*) emotional instability; (*d*) instability in actions. M. Duprat combats the necessity for any hypothesis of "double personality". But his positions on this matter, though verbally in strong antagonism to the contentions of the "mental disaggregationists" or "dissociationists," are not, it seems to me, much different in substance. For example, his rejection of mental "vivisection" (as in suppression of states by hypnotic suggestion) gives the case away when it is admitted (p. 259) that, in certain psycho-pathic conditions, we do discover the "effets particuliers de l'imagination, des instincts, des diverses tendances, des habitudes, *quand rien ne les réfrène plus*," that is when the (indispensable to the normal state) superior centre is, so to speak, out of office. Many such points arise for argument; but space forbids. The last part—part iii.—focusses results for the ends of education. These chapters contain many useful practical principles. The fundamental distinction that, it seems to me, is *not* made in the book is the distinction between "unity of consciousness" as an epistemological assumpt and "union of consciousnesses" as, to borrow from physics, the moving point in psychological kinematics. This brief note does nothing like justice to the amount of careful scholarship that the book contains.

W. Leslie Mackenzie.

Lettres Inédites de John Stuart Mill à Auguste Comte. Publiées avec les Réponses de Comte et une Introduction. Par L. Lévy-Bruhl, Maître de Conférences de philosophie à la Faculté des lettres de l'Université de Paris, Professeur à l'École libre des sciences politiques. Paris: Félix Alcan, 1899. Pp. xxxviii., 560.

With the full approval of the representatives of both Comte and Mill, the whole correspondence between the two philosophers is now published. Comte's letters appeared separately in 1877. They are now reprinted from the original manuscripts. Mill's letters are printed from a copy, of which, however, there is no doubt about the accuracy. All the letters now appear in chronological order. The dates are from 8th November, 1841, to 17th May, 1847. A useful index of names and subjects is added. M. Lévy-Bruhl has prefixed to the correspondence an excellent and judicial summary. Mill, he points out, at first gave Comte the impression that he was a disciple. Comte had besides been impressed by the fact that his work had drawn more attention in England than in France. From this he derived the mistaken idea that there was already a definitely "positivist" group in England. The correspondence as it proceeded destroyed both these illusions; disclosing irreconcilable divergences

between Mill and Comte, though Mill was then nearer discipleship than any other Englishman. The "influence" exercised, as M. Lévy-Bruhl makes clear, was entirely that of Comte on Mill. Mill was essentially "receptive," and thought that he and Comte might, by discussion, modify each other's "opinions". Comte had not "opinions," but doctrines that were portions of a system. The question was whether any particular doctrine was logically connected with the rest. This he was prepared to consider, but anything that modified the system as a whole was not a point to be discussed. For him the "positive philosophy" has the character of positive science, and admits of no essential modifications. The divergences that came out most clearly related to the position of psychology in the system of the sciences and to the question about the inequality of the sexes. These, as M. Lévy-Bruhl shows, were not unconnected. Comte entirely repudiated the "eighteenth century psychology," or, as he called it, "metaphysics". Mill's adherence to it in principle was decisively shown by his inclination to regard human beings as approximately equal apart from differences of education. Admitting that the position of Helvétius is exaggerated, he yet thinks there is a portion of truth in it which is neglected in Comte's view—derived from Gall—that there are ineradicable differences of faculty determined by the character of the organism. From this divergence the views of the two thinkers about the natural equality or inequality of the sexes are corollaries. In concluding, M. Lévy-Bruhl draws attention to what is an even more important theoretical difference, though it was less connected with personal sentiment, and hardly comes into full view in the correspondence. Comte's notion that psychology should be treated as a branch of biology is of course not original. His real originality in relation to psychology finds expression in the formula which M. Lévy-Bruhl cites, that humanity must not be explained by the individual man, but man by humanity. Thus there can be no science of character, such as Mill's 'ethology,' prior to the study of the historical evolution of humanity. M. Lévy-Bruhl adds that Mill's throwing himself into a work on political economy must have put an end to all hope of agreement. This, however, had not yet presented itself as an irreconcilable difference. Comte, as may be seen in the letters, allowed to political economy a provisional value, and all along remained interested in Mill's treatment of it. As to its necessary subordination to the general science of society, both were at one. The actual agreement, of course, did not extend much beyond this most general position; as no doubt would have become plain if the correspondence had continued till the *Political Economy* was published.

T. WHITTAKER.

L'Ignorance et L'Irréflexion. Essai de Psychologie objective. Par L. GÉRARD-VARET, Agrégé de Philosophie, Docteur ès Lettres. Paris: Félix Alcan, 1898. Pp. 296.

Under its apparently vague title this is an original and interesting psychological essay. What M. Gérard-Varet means by "ignorance" is the state of mind of the primitive man, who has "intelligence," but not the "reflective" consciousness characteristic of high civilisation. The author's method is to work backwards from the idealism which he finds to be implied in modern philosophy, and, having at length reached the twilight of the first human thinking, to return thence to the reflective stage. His first generalisation is that the farther back we go, the more of its own states does the mind attribute to something external. For modern philosophy all consciousness—however it may afterwards be interpreted—is primarily the product of the subject, or else constitutes

it. Go back first to Descartes. For Descartes the idea of the infinite—but that alone—is inexplicable from the subject's own activity or as one of its constituents. Now compare Descartes with Aristotle. Although in detail Aristotle may seem to ascribe more to mental activity than Descartes, yet, according to his general doctrine, reason as a whole, and not simply one of its ideas, comes into man from without. After these preliminaries, M. Gérard-Varet has a study of the doctrine of Plato, especially as regards error. The difficulties with which Plato grapples in the *Theætetus* are found to be due to his trying to define 'error' as something given, not as a product of the mind itself. The solution, in the *Sophist*, is that there is a real 'not-being' in things, and that this can be presented to the mind as an object. Going back now to Homer (in the *Iliad*, as most primitive) we find that the emotions and mental conceptions of men and even of gods are almost invariably said to be suggested by some other person, human or divine, or by powers external to the soul. Only in two cases does the poet recognise in the subject the cause of its ideas, *viz.*, in poetic metaphor, where he is conscious of his own creative activity, and in works of imitative art like the shield of Achilles, where the mind of the artificer is conceived as the cause of the production. Can we not find a still more primitive stage, where the products of these activities too are thought to be something objectively given and not made? Such a stage the author thinks can be retraced in the records of more archaic civilisations interpreted according to the modes of thought of modern savages. Myth, before it passes into conscious poetic art, is simply an imaginative filling-in of the data of sense, and for its makers has the same value as the representative elements in perception. The forms of imitative art are endowed with a life of their own—statues of gods become actual guardians of a territory—and so are thought of as evoked rather than created by the artist. Reconstructing the modes of conception thus analysed, we find that primitive "ignorance" conceives of every representation as objectively given, and at the same time as animated and existing for itself. For each thing every imaginable transformation, and every relation with all other things, is possible. There are no such conceptions as those of impossibility on the one hand or necessity on the other. In modern metaphysical phrase, every single representation is at once substance, cause and absolute. Experience and reflexion by degrees impose limits on this primitive tendency of mind, and shape out the conceptions of relativity, impossibility and necessity. This last conception, by which modern science is characterised, has its origin in mathematics and nowhere else. It is from mathematics, in the deductive form, that the conception of undeviating necessity has extended itself to natural causation. The initiation of mathematical science, in this sense, was the work of the Pythagoreans, entangled though they too were in the illusions of primitive realism.

T. WHITTAKER.

L'Avenir de la Philosophie. Esquisse d'une Synthèse des Connaissances fondée sur l'Histoire. Par HENRI BERR, Ancien élève de l'École Normale supérieure, Professeur de Rhétorique au Lycée Henri IV., Docteur ès Lettres. Paris: Hachette, 1899. Pp. x., 511.

A fairly correct general description of M. Berr's philosophy would be "positivism *plus* psychology"; to which it ought perhaps to be added that while the name of metaphysics is suppressed, the thing is retained. The latter part of the description, however, is too little distinctive. It might be applied to so much contemporary thought. The affinity with

positivism comes out clearly in the briefest statement of general ideas. Positivism itself the author declares to be untenable for want of psychology and criticism of knowledge (p. 231). He adopts, nevertheless, the historical study of thought as the method of attaining truth. The aspiration of the thinker must be, not to have the right to say "That is my thought," but "That is what my time has thought in me". One principle affirmed is the "superposition of kingdoms"—inorganic, organic and "thinking". The philosophic synthesis must unify the sciences. The practical end also is unity. For the attainment of this unity the State is to suppress itself, making of society a Church. Or rather, as the author proceeds, to avoid old historical associations, let us substitute for the name of Church that of "Synthesis". He can criticise the existing social order keenly, and can express himself pointedly, as in the incidental remark: "La vie actuelle est faite de pièces qui ne s'ajustent pas" (p. 19, note). His attitude towards the future he defines as "expectant dogmatism". The historical synthesis is not yet created, but will be. The guarantee of this is the progressiveness of thought. Materialism and idealism are equally false. The most general position to be laid down is monism, but as a hypothesis. If we say that thought and extension are both phenomenal, and that there is a reality, knowable in the subject, which constitutes equally the subject and the object, our position has nothing absurd, though it is not yet proved. In this "extension of the being of the *ego* to the whole," anthropomorphism is legitimate on condition of being purified. "What psychology is to the conception of science, History is to the direction of the Synthesis: and, like anthropomorphism, anthropocentrism is legitimate, on condition of being well understood." The author is faithful to his historical idea in giving, between his outline of the method of seeking truth and his detailed exposition of the method of establishing it, an extended review of the evolution of European philosophy in the seventeenth, eighteenth and nineteenth centuries (pp. 50-291). The conclusion (pp. 449-511) applies the result to ethics, and is entitled "The Destination of Man".

Le Rôle sociale de la Femme. Par Madame ANNA LAMPÉRIÈRE. Paris: Félix Alcan, 1898. Pp. 174.

Madame Lampérière's book is not an elaborate study of the social duty of woman. It is rather in the nature of a criticism of the "feminist" movement in France. According to Madame Lampérière the "feminist" movement is the result of a false interpretation of the facts of life. The principal characteristic of the woman's movement is its tendency to regard the conditions of life of both sexes as the same. As men and women are both human beings the "feminists" say that they ought in consequence to have the same rights, the same duties, the same liberties, and that they ought to stand on a footing of absolute equality. Madame Lampérière considers that these ideas are retrograde: she considers that they are condemned by biological and sociological laws: they are the outcome of a superficial liberalism attempting to apply the principles of 1789 in a blind and unthinking manner. It is true that women should have the same rights as men. These rights may be summed up in the right of woman to secure the full development of all her faculties. A careful examination shows that a woman's faculties are different from a man's. They are equal in importance, superior in some respects, quite as necessary for the harmonious organisation of individual and social life. Nevertheless they are different. A woman's movement which is to be really fruitful should take this fundamental fact into account. It should not waste its

energies in attempting to assimilate a woman's life with a man's. This is to attempt the impossible. It should concentrate itself upon the true sphere of feminine activity, it should show what the parental and social duties of women really are. It is by differentiation of duties and not by identity of duties that social progress is effected. Whether we agree with Madame Lampérière or not it must be admitted that she has made out a case which deserves consideration.

Ueber die Grundvoraussetzungen und Consequenzen der individualistischen Weltanschauung. Von WINCENTY LUTOSLAWSKI. Helsingfors, 1898. Pp. 88.

Seelenmacht: Abriss einer Zeitgemässen Weltanschauung. Von WINCENTY LUTOSLAWSKI. Leipzig: Engelmann, 1899. Pp. xvi., 301.

In these writings the versatile and accomplished author of the *Origin and Growth of Plato's Logic* sketches the outlines and develops some of the practical consequences of his philosophic *Weltanschauung* in so lucid and vigorous a manner and in such excellent German that he cannot fail to interest every reader who can get over the shock of surprise at finding the inventor of stylometry—a science (or pseudo-science) which is assuredly destined to provide German professors with congenial employment for some centuries to come—capable of such flights of the imagination. M. Lutoslawski is avowedly an individualist, and as individualism happens just now to be unfashionable, it is not very probable that he will get many to agree with him; and indeed some of his conclusions are hardly such that others can be expected to share them, *e.g.*, none but a patriotic Pole could possibly adopt M. Lutoslawski's faith as to the spiritual mission of the Polish people. Nor, to do him justice, does he appear to be much concerned to convince his opponents. He is more concerned to state his own convictions for the benefit of congenial spirits than formally and fully to refute 'universalism'. Nevertheless, he sees and expresses clearly many of the chief difficulties which beset the attempts to construct a monistic philosophy. We may note especially his account of the futility of Lotze's "M" (*Grundvoraussetzungen*, p. 11-13), of the inconclusiveness of the argument from the commensurability of things (*loc. cit.*, p. 23), of the nullity of the conception of infinite power (*Seelenmacht*, p. 120), and of the impossibility of reconciling the existence of evil and freedom with the assumption of a single all-embracing substance, and that of personality with that of infinity (*loc. cit.*, p. 137).

In all this he is of course traversing ground which is familiar to all who have ever felt the force of the arguments for pluralism. But such objections to the traditional monism will bear repeating so long as it persists in its dogmatic somnolence. When it comes to drawing conclusions from his principles M. Lutoslawski appears more original. For originality in philosophy is largely a matter of courage in working out to their ultimate logical consequences the conclusions implied in a limited number of alternatives, and M. Lutoslawski is certainly abundantly equipped in this respect. Accordingly he ventures to maintain that in the universe of interacting monads (souls) which constitute our world God (or the complex of higher souls) is neither omnipotent, nor omniscient nor infallible, that all souls are uncreated and immortal, and that their telepathic interaction is a simple and demonstrable fact, that the totality of existence is capable of augmentation but not of diminution (*Grundvoraus.*, p. 24), that anthropomorphism is inevitable, and that the

true ethical ideal is to be found in the *Liberum Veto* of the defunct Polish Republic (*loc. cit.*, p. 47).

It is obvious that some of these deductions are more original than prudent, while the proof of others hardly seems sufficient. Thus the argument (*loc. cit.*, p. 48) that there must be a God, because there must be some highest being in the universe, hardly seems sound, and indeed no deity of any sort would seem to be really needed in a scheme which doubts the supreme wisdom of Providence. Again, the postulate of unanimity, irrefragable though it be metaphysically, and safe though it may conceivably be to whisper it in the sanctuaries of the seventh heaven, is hardly one to be rashly applied to the practical exigencies of our terrestrial universe.

The practical corollaries which M. Lutoslawski draws from his doctrines may be passed over lightly. They are greatly affected by his personal equation, very visionary and extravagant, and evidently inspired by the political paradoxes of Plato's *Republic*. One is a little surprised to find that a subject of the Tsar should have been permitted to utter them with impunity, but there is not perhaps any great danger of their having any practical effect on any existing society. Still their greater prominence in *Seelenmacht*, together with the greater length of this work, renders the *Grundvoraussetzungen* decidedly preferable reading for the student of M. Lutoslawski's philosophy.

F. C. S. SCHILLER.

Geschichte der neueren Deutschen Philosophie seit Hegel. Ein Handbuch zur Einführung in das philosophische Studium der neuesten Zeit. Von Dr. Phil. OTTO SIEBERT. Göttingen: Vandenhoeck und Ruprecht; London: Williams & Norgate, 1898. Pp. 496.

The description of this work given on the title-page is somewhat misleading. Whatever may be the value of the work as a book of reference, it is hardly fitted to serve as an introduction to the study of the period with which it deals. In the Preface the author seems to give two rather different explanations of the aim and scope of the work. After speaking of the importance of a study of the past achievements of philosophy, he goes on to say, "Die Geschichte der Philosophie will dazu behilflich sein, sie sorgt, dass die Mühe und Arbeit früherer Geschlechter den lebenden nicht verloren geht, sie will die Meister vor Augen führen, damit die Jünger selbstständig weiterarbeiten". But a little farther on he explains his work as being "eine Bearbeitung der Geschichte der neueren Philosophie seit Hegel, welche möglichst alle irgendwie erwähnenswerten philosophischen Erscheinungen berücksichtigt". Now these two accounts do not seem to agree very well. The "Meister" of the first can hardly be identified with the "irgendwie erwähnenswerten Erscheinungen" of the second. And in any case the scope assigned to the work in the second account seems quite inconsistent with the purpose of the work as set forth on the title-page.

Certainly it is in the spirit of the second account that the work itself is written. It deals with a very large number of philosophers of all grades of importance (the index of mere names runs to six pages), and to any one philosopher the author devotes as a rule (there are comparatively few exceptions) not more than three pages, very often a page or less. Within this compass he gives an abstract, apparently as nearly as possible in the phraseology of the philosopher himself, of the latter's more important doctrines or works. In many cases it is not easy to see what useful purpose is served by such a method. Thus in the case of several of the

Hegelians, *e.g.*, G. Biedermann, J. E. Erdmann, Michelet, and Rosenkranz, the abstract becomes a mere string of categories, divisions, and subdivisions, the enumeration of which is as useless as it is tedious. That a more useful method could have been adopted is occasionally evidenced by the author himself. His statement of the points of difference between Schopenhauer and Frauenstädt gives just what is of service.

The work is divided into three main sections. An introduction, too brief and conventional to be of much use, and a concluding survey, which is little more than a reiteration of names, may be disregarded. The first main section, extending to rather more than half the book, deals chiefly with the schools or followers of the masters of the previous period, though it also has chapters dealing with Schopenhauer and Trendelenburg. Within each school or lesser group the names follow each other, as a rule, in alphabetical order. The arrangement of the second and third main sections is more open to question. The second, entitled "Reaktionserscheinungen," contains chapters dealing with Materialism, Positivism, and "Der Aufschwung der Naturwissenschaften"; the third, entitled "Neue Versuche," chapters dealing with "Der Neukantianismus" and "Versuche zu neuer Systembildung". The question of classification is naturally difficult and disputable, but certain of the author's decisions seem rather arbitrary. The chapter on "Versuche zu neuer Systembildung" is by no means exclusive, since twenty-seven such constructions are enumerated and summarised. Yet Wundt and Avenarius appear only as "Reaktionserscheinungen," the former being (very inadequately) dealt with in the chapter on "Der Aufschwung der Naturwissenschaften," the latter in that on Positivism. Paulsen appears somewhat questionably as a Neo-Kantian. Among the new constructions, the philosophies of Lotze and Eucken receive most attention. The account of Eucken, "Der bedeutendste systematische Philosoph der Gegenwart," extends to 15 pages, that of Lotze, covering 12 pages, is taken almost exclusively from the "Microcosmus," the early books of which are analysed at length, while the last is dismissed in a paragraph.

H. BARKER.

La Psicologia Contemporanea. By GUIDO VILLA. Torino: Fratelli Bocca, 1899. Pp. 660.

"The time is rapidly approaching"—Dr. Stout's prefatory words to the *Analytic Psychology* will be remembered—"when no one will think of writing a book on psychology in general, any more than of writing a book on mathematics in general." If this be so, if the youngest of the independent sciences, still struggling with a leading string or two, be in this respect nearly abreast with the oldest of the sciences, the time is specially appropriate for the appearance of Prof. Villa's review of what has been written on the more comprehensive lines. Political Economies "in general" are probably at the same stage. Research is leaving the apprehension of synthetic unity for awhile to grapple with the manifold piecemeal in monograph and *Beitraege*. And the present author's effort to give us "a historico-critical introduction to contemporary psychology" has in that other field the illustrious precedent of the *Guida* by his fellow-countryman, Dr. Cossa, now well-known in this country.

Prof. Villa, one of Italy's youngest thinkers, advanced in views and withal *simpatico*, was called last autumn, on the completion of the present work, from the post of teacher of psychology at the Lyceum of Lugano to the corresponding chair at the Lyceum of Leghorn. The

book is his first work of importance. In it his ostensible purpose is to set out, not so much a complete exposition of the methods and results of contemporary psychology as a statement of "the general principles on which it is based, as well as the ways by which these have evolved from philosophic doctrines and antecedent psychology". And he confines himself, of course, to work done in Germany, England, America and France, trusting, as to his own land, that he may help to stimulate the as yet very tender growth in her of psychological research. The compilation has occupied some years of labour, and has taken the following shape: A brief introduction on the present position of psychology. Seven very lengthy chapters on (i.) the historical development of psychology, (ii.) definition and scope of it, (iii.) body and mind, (iv.) the methods of psychology, (*a*) in research, (*b*) in exposition, (v.) psychical functions, (vi.) consciousness, (vii.) the laws of psychology; conclusion, including brief discussions on theories of "social and historical consciousness" and of the immortality of consciousness, and a general summary.

There was much to say; much also is here said. The diction is generally lucid and straightforward, nevertheless the author seems to prefer to more concise methods the rhetorical device of impressing by repetition. To take only one instance, there is scarcely a chapter in which the "intellectualistic" character of English psychology is not set forth and discussed. This plan of "rubbing it in" is not without its advantages where, as in this case—and in, alas! how many other cases of this class of research—the book is launched on the world without either index or page reference to the details of its contents. One cannot open the book at hazard or study any one chapter without practically sampling what the writer has to say. On the other hand a good deal of needless diffuseness and repetition might have been avoided to good purpose. And 660 pages is a deal to read. The more need then for more subdivision than is afforded by a few chapters of vast length, and for all the machinery possible by which an author may take his reader by the hand and aid him in the gentle art of selection. Even for the Italian reader, unless he be a scholar of leisure (is there now anywhere such a species?), the digestion of the work is not made as easy as it might have been. Both the investigator and the learner have their special reasons for requiring many sign-posts and mile-stones. How much more orphaned must the foreign student feel, who, with possibly only a smattering of Italian, has gladly hailed the appearance of Prof. Villa's book as supplying a great want unmet as yet, either wholly or in part, by the psychological literature of his own country? The work will, in course of time, if that want continues unsatisfied, find its way into translations, and richly deserves such a fate. Meanwhile, many a reader will have to wait whose acquaintance with Italian might, with the aids I have indicated, have proved adequate to his understanding the contents.

That the extent of the book's usefulness should be thus handicapped is the more to be regretted when the special benefit is considered which accrues to the English and the German student through a "historico-critical" comparison of the two chief traditions of constructive psychology as made by one whose country and language are as yet undominated by any such psychological tradition of its own. They learn to know their own tradition from the outside, and to estimate where it is strong or weak in its standpoint and evolution by holding up to it the lines worked out in other schools. And the criterion of efficiency in the compilation of such a comparative study must of course lie in the power shown by the compiler to lay hold of the vertebral features of each school of doctrine and trace their development up to the present day with justice and with sympathy.

On the whole the author has succeeded. The tone is one of appreciation and disinterestedness. Nor is this marred by his preponderant admiration for the great work of Wundt as marking the furthest advance in the psychology of to-day. His materials are rich and comprehensive and no branch of modern research is omitted. Nevertheless for all the trees one can see the wood. The specific character of German psychology stamped upon it by the tendencies of German philosophy is indicated in broad lines; the conditions and growth of the psycho-physical movement broadening into a thorough-going experimental development and the quest of the individual as a psycho-physical unity is fully gone into. The "intellectualism" shared by both German and English psychology —*i.e.*, psychologising by way of *Vorstellungen* with a corresponding relative neglect of the more intimately subjective activities,—but working in England by associationism, in German by the concept of syntheses, is shown as having been upset in Germany by the influence of Schopenhauerism, the "volontaristic" tendency paving the way to a truer conception of the essential unity of the psychical continuum. In England we are found to be still holding by our intellectualistic psychology, although the great analysis by Dr. Bain of emotion and will is duly appreciated. Full justice however is done to the great work accomplished by English psychologists of extricating their subject-matter from philosophy and of raising it by their experiential methods to the threshold of a science among the sciences. In our anxiety, however, to set out an analysis of mental phenomena as we find them, the author holds us too descriptive merely, too little explanatory. Is it perhaps the fact that he has not succeeded in obtaining a clear grasp of the real explanatory work done by English "intellectualism"? Berkeley stripped our philosophy of the independent reality of the external world *as knowable*. Hume stripped our philosophy of a subject entity as inferable. They left us instead a world of sensations and ideas to analyse and to classify, and the construction therefrom of an intelligible theory of how we come to interpret them as external world. It is this attempt, continuously handed on, to explain the external world *as known*—a task to which the doctrine of association is only ancillary—which is the chief output hitherto of British psychology in a progressive line of development from Hobbes, Locke and Berkeley, down to Bain, Sully and Croom Robertson. And herein may be found wealth enough, not only of descriptive analysis but of explanation as well. Prof. Villa doubtless knows all this far better than his present critic, but I do not find it clearly set out, nor justice done to the realisation of the importance of explanation as end in British psychology. Yet Berkeley's theory of vision and Brown's theory of muscular sense, as wrought up by English nineteenth century psychology into its theory of external perception, are alone sufficient to vindicate that school on a charge of mere descriptive analysing. But its modern representatives do not seek only to explain the externality of the not-self. They are turning from what Berkeley left us to the subjective world without subject left us by Hume. In the works of Drs. Ward and Sully we have the beginnings of an explanation in terms of psychic process of the growth of the concept of the self. Prof. Villa has gone at some length into the metaphysical hypotheses involved in the essential concepts of psychology, and has given interesting *aperçus* into such modern speculative developments as neo-materialism, neo-Thomism, neo-vitalism and the like. But what we chiefly seek, in a conspectus of contemporary psychology is a succinct account of how far the latter has gone in explaining, in terms of mental procedure genetically treated, "the crowd of facts concerning our mental life revealed by analysis of ordinary experience".

Of the methods and the gradual stages by which psychological research is making way towards explanatory doctrine the reader will find a comprehensive account and a quantity of useful bibliography. (A curious omission, by the way, in the historical chapter, is that of Spinoza's analysis of the emotions.) Full justice to the work cannot be done in this brief space. But it will prove itself a valuable aid to the student and scarcely less to the historians of psychology.

C. A. F. Rhys Davids.

Received also:—

G. T. Ladd, *A Theory of Reality*, London, Longmans, Green & Co., 1899, pp. xiv., 556. (18s.)

F. Max Müller, *The Six Systems of Indian Philosophy*, Longmans, Green & Co., 1899, pp. xxxi., 618. (18s.)

M. M. Patrick, *Sextus Empiricus and Greek Scepticism*, 1899, pp. vii., 163. (5s.)

J. Ward, *Naturalism and Agnosticism* (Gifford Lectures delivered before the University of Aberdeen, 1896-98), London, Adam & Charles Black, 1899, two volumes, pp. xviii., 302; xiii., 291. (18s.)

J. W. Anderson, *The Power of Nature in Disease*, Edinburgh, W. F. Clay, 1899; London, Williams & Norgate, pp. 50. (1s. 6d.).

A. Binet, *The Psychology of Reasoning* (translated by A. G. Whyte), Chicago, Open Court Publishing Co., 1899, pp. 188.

T. Wechniakoff, *Savants, Penseurs et Artistes*, Paris, Félix Alcan, 1899, pp. 224. (2 fr. 50.)

P.-Félix Thomas, *Morale et Education*, Paris, Félix Alcan, 1899, pp. vi., 168. (2 fr. 50.)

A. Hannequin, *L'Hypothèse des Atomes*, Deuxième Édition, Paris, Félix Alcan, 1899, pp. 457.

J. M. Baldwin, *Développement Mental*, traduit sur la seconde édition anglaise en collaboration avec l'Auteur par G.-L. Duprat, Paris, V. Giard & E. Brière, 1899, pp. 577.

A. Spir, *Nouvelles Esquisses de Philosophie Critique*, Paris, Félix Alcan, 1899, pp. xxx., 146.

A. Binet (publiée par), *L'Année Psychologique*, cinquième année, Paris, Schleicher Frères, 1899, pp. 902.

A. Hatzfeld et M. Dufour, *La Poétique d'Aristote* (Édition et Traduction nouvelles précédées d'une Étude philosophique), Lille, 1899; London, Williams & Norgate, pp. lxiii., 117.

H. Lichtenberger, *Friedrich Nietzsche* (Aphorismes et Fragments Choisis), Paris, Félix Alcan, 1899, pp. xxxii., 181. (2 fr. 50.)

E. Marguery, *L'Oeuvre d'Art et L'Évolution*, Paris, Félix Alcan, 1899, pp. 181.

M. Manheimer, *Les Troubles Mentaux de l'Enfance*, Paris, Société d'Éditions Scientifiques, 1899, pp. 183.

B. Tschitscherin, *Philosophische Forschungen* (aus dem Russischen übersetzt), Heidelberg, 1899; London, Williams & Norgate, pp. x., 536.

B. Liebich, *Die Wortfamilien der lebenden hochdeutschen Sprache als Grundlage für ein System der Bedeutungslehre*, Erster Teil, Vierte und fünfte Lieferung, Breslau, Preuss & Jünger, 1899, pp. 241-400.

S. Rappaport, *Spinoza und Schopenhauer*, Berlin, 1899; London, Williams & Norgate, pp. 148.

F. Masci, *Elementi di Filosofia*, volume i.,—*Logica*, London, Williams & Norgate, 1899, pp. 529.

VIII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. viii., No. 2. **J. G. Schurman.** 'Kant's Theory of the *a priori* Forms of Sense.'—II. [Space is not a necessary perception *a priori;* it is an empirical notion. It is the mode in which a certain aspect of reality reveals itself to consciousness, and is derived not from intensity and quality (mental chemistry) but from a given extensity. Kant's space fails to account for the universality, the synthetic nature, and the objective validity of geometrical propositions; empiricism is adequate to the first two characteristics, and is not perplexed by the third.] **A. Lefevre.** 'The Significance of Butler's View of Human Nature.' [The central doctrine in Butler is that of the organic and harmonious wholeness of human nature; his method is teleological. He envisages human nature as a system, with conscience as reflexion supreme, under that the two principles of reason, self-love and benevolence, and under these the appetites, etc. The end to which the system is conducive is morality. Butler differs from Kant in conceiving the relations of the sensible and the rational self to be organic. Problems of obligation, of vicious action, of the universal self.] **L. M. Solomons.** 'The Alleged Proof of Parallelism from the Conservation of Energy.' [The question of the freedom of the will has to do with the laws governing the time and place of transformation of energy, not with quantity of energy. Let A be psychical cause, and B physical effect: whence comes the energy represented by B? So far as the conservation of energy is concerned, it might come from the other side of the moon. Hoeffding and Ebbinghaus employ an old-fashioned idea of causation, and assume that energy passes from cause into effect, a survival from scholastic metaphysics. The real point at issue is the mechanical theory of the universe. 'Mechanical' may mean ateleological (in which case interaction may be held), or dynamical (all laws are laws of motion). But the dynamical theory is at best a working hypothesis for physics, and has no usefulness in psychology. Hence parallelism is non-proven.] Discussion. **D. S. Miller.** 'Professor James on Philosophical Method.' [Critique of *Philosophical Conceptions and Practical Results.* James is pragmatic (whither does a conception go?), the English empiricists genetic (whence did it come?). His guiding thoughts are those of spontaneous activity and of risk. Does, then, truth depend on success, on biological or social utility?] Reviews of Books. Notices of New Books. Notes. **W. B. Waterman.** 'Rare Kant Books.'

PSYCHOLOGICAL REVIEW. Vol. vi., No. 2. **G. T. Ladd.** 'On Certain Hindrances to the Progress of Psychology in America.' [Progress is hindered by the aloofness of teachers from the real world; by the trend towards popularising; by the temper of psychological discussions; by the intrusion of the commercial spirit into science; by the servility of psychology to related sciences. All these hindrances are matters of *personnel* rather than of *matériel.*—One must distinguish between psychologists and psychologists, however: there is now a rank and file of

workers in every science. If we take the best men as representative of psychology, the first, third and fifth of Prof. Ladd's objections seem to be illusory. The second and fourth contain an element of truth; but it is American conditions rather than American psychologists that are to blame.] **H. Ellis.** 'The Evolution of Modesty.' [The emotion of modesty, a psychic secondary sexual character of the first rank, is compounded of two fears: sexual fear, of the action of the male, and social fear, of evoking disgust. Clothing and bodily ornament bring in the new factor of *coquetterie*. Then comes the conception of women as property. Finally we have the elaboration of a social ritual of modesty; but extension does not mean intensification. The blush, the sanction of modesty, indicates that the emotion is a very radical constituent of human nature in all stages of civilisation.] 'Proceedings of the Seventh Annual Meeting of the American Psychological Association, New York, December, 1898.' Discussions. **C. L. Herrick.** 'The Material *vs.* the Dynamic Psychology.' [Psychology is vitiated by its retention of the substance-idea. Consciousness is really activity, a form of energy. Adopting this standpoint, we can approach with some hope of answer the vexed questions of parallelism, of the seat of mind, and of biological vitalism.] **W. Caldwell.** 'The Postulates of a Structural Psychology.' [Critique of Titchener, from an epistemological point of view.] **W. Caldwell.** 'Psychological Method.' [Critique of McDougall.] Psychological Literature. New Books. Correspondence and Notes.

Revue Philosophique. August, 1899. **Dr. Hartenberg.** 'La Peur et le Mécanisme des Émotions.' [An emotion is a motor reaction consisting of four successive nervous phenomena, *i.e.* (1) a centrifugal motor cortical excitation, (2) a somatic motor reaction, (3) a centripetal sensory reaction, (4) *a* the reception at the vortex of the sensory excitation; *β* (epiphenomenon) consciousness; hence an emotion may be defined as an internal movement, producing an internal sensation.] **G. Palante.** 'L'Esprit de Corps.' [*Esprit de Corps* expresses the collective will-to-live of the group who experience it. It is at its height in the liberal professions. It fosters strict conformity to type, and hence mediocrity at the expense of the finer flower of individuality; it is, therefore, inimical to morality.] **L. Marillier.** 'L'Origine des Dieux.' [The author continues his exposition of Mr. Grant Allen's theories as propounded in his *Evolution of the Idea of God*, singling out for special attention the chapter on "The Fabrication of Divinities," in which the origin of the God-idea is traced back to that of the soul of a dead person.] Revue Critique. **G. Belot.** 'La Psychologie du Socialisme d'après Gustave Le Bon.' Analyses et comptes rendus. September, 1899. **L. Marillier.** 'L'Origine des Dieux (Fin.).' [A careful critical examination of the book, the contents of which have been expounded in previous articles. While admitting the value of the facts brought forward and of the many good qualities of the work, the writer shows that the method employed is not one on which any dependence can be placed.] **A. Naville.** 'La Nouveauté dans la Conclusion: Étude Syllogistique.' [Goes over the old ground of the value of the syllogistic conclusion: are we confined to the alternative either already known or unjustified? The writer answers in the negative and maintains that the term canon of syllogism is not the *dictum de omni et nullo*, but the law of substitution which Jevons formulated. **G. Bos.** 'Du Temps de Croyance.' [An act of belief is a synthesis, and occupies time. This time may be analysed into (1) *temps opératoire*, (2) *temps de sommation*, (3) *temps de croyance*, in which latter the synthesis proper takes place. The length of time required is directly proportional to the resistance which the idea to be believed encounters

in us, and this resistance is constituted by pre-existing tendencies to act in a contrary direction.] **Varchide.** 'Recherches experimentales: Observations sur le pouls radial pendant les émotions.' Analyses et comptes rendus.

REVUE DE MÉTAPHYSIQUE ET DE MORALE. November, 1898. **G. Vailati.** 'La Méthode déductive comme Instrument de Recherche.' [To Aristotle, the characteristic distinguishing the conclusions of deductive reasoning from those of induction, was that in the former case the conclusion could not be denied without falling into a contradiction or without casting a doubt on the premises, while the results of induction might be rejected though the data remained unimpeached. His notions of deduction were based solely on its use in geometry and rhetoric. The method was used to guarantee probable assertions by reducing them to others more probable or certain. In modern philosophy, as early as the time of Descartes and Gassendi, we find deduction applied to explain and anticipate experience, no longer confined to determining the consistency of proposition with proposition. So too, in Galileo's advances in mechanics, this method filled the most important rôle. Further, there is an important difference of motive as between the ancients and the moderns. The Greeks sought relief from the uneasiness of uncertainty in facing nature, a riddance of the fear of its mysterious powers. With them deduction did not aim at following theories out to that point where experiment might test the validity of alleged laws and determine their limits. Bacon's attack on the syllogism deals rather with the scholastic abuse of deduction than with the true Aristotelian method. Again, when Mill charges the syllogism with the fallacy of a vicious circle, he forgets that to assert the implication of the conclusion in the premises, means only to assume that the fundamental propositions of a science are sufficient to prove its theorems without further appeal to experience. Notwithstanding his criticism of Mill, the author goes on to describe in much the same way as Mill those scientific applications in which the method is most successful, in particular where there is "intermixture of effects". A notable feature in the essay is the wealth of illustration from mechanical science.] **Chr. Marechal.** 'Un Fragment inédit de l' "Esquisse d'une Philosophie" de Lamennais.' [This article contains an instalment of a sketch of social philosophy by Lamennais, the manuscript having been recently discovered at the Bibliothèque Nationale. The main object is to show in the family and in the idea of property, the invariable form in which alone human progress may be developed, to show in property and family the "plastic realisation" of the eternal laws which appertain not only to the Creation but also to the very existence of the Creator. It aims at laying the foundations of a "social religion," a certain number of extremely simple metaphysical and moral principles which render possible a union among human beings.] **Maurice Blondel.** 'L'Illusion Idéaliste.' [The first part of the article criticises the traditional philosophies regarded as phases of a common "intellectualism," the extremes being idealism and realism. It concludes that whichever of the sides we adopt, our problems are insoluble, our assertions are involved in contradictions. The second or constructive part suggests a point of view from which we may hope a greater measure of success, without losing touch with the tendencies of the time or breaking with tradition. Philosophy should hold to what is real, concrete, living: it should attend more to the particular, the individual, the personal: it must recognise the superiority of love and action above theory: it must recognise the irreducible originality of the practical.] In the department headed "Discussions" there are two short articles dealing with the fundamental

principles of mathematics, both extremely interesting but not readily lending themselves to condensation. They are: G. Lechelas, L'Axiome de libre mobilité, and B. Russell, Les Axiomes Euclidiens sont-ils empiriques?

REVUE NÉO-SCOLASTIQUE. No. 20. **J. Huys** ('La notion de substance dans la philosophie contemporaine et dans la philosophie scolastique') examines the notions of substance as found in the various systems of philosophy that are dominated by the influence of Kant, and compares them with the notion of substance as understood by scholasticism. He contends for the reality of substance, not only in the external world, where Wundt would allow its reality, but also in the internal world, where Wundt would deny it. He maintains that, besides the transitory phenomena of the Ego, there is in the Ego something permanent, which is the subject in which and by which the phenomena are produced. The soul, then, is not "the sum of psychical activities," as Wundt would say; nor "the *ensemble* of vital phenomena" (das ganze Seelenleben), as Paulsen would say; but is a substance. **A. Thiéry** ('Qu'est-ce que l'art?' *suite et fin*), continuing his examination of the æsthetic formula of Count Tolstoi, "art is the means of transmitting sentiments to man," concludes that if this formula be correct, the cook of a Lucullus must be beyond question the greatest artist the world can know, seeing that such a one has the power of exciting to an illimitable extent that appetite which is the most universal of all sensations. **D. Nys** ('La nature du composé chimique' *suite et fin*) refuses to believe that bodies chemically compounded are nothing more than mere aggregates of elementary substances, and maintains that, on the contrary, these compounds are actuated by an essential unity. **Dr. St. George Mivart** ('L'utilité explique-t-elle les caractères spécifiques?'), basing his conclusion on a lengthened study of the Lories, or brush-tongued parrots, argues that to say with Dr. Alfred W. Wallace that all the distinctive characteristics of species can be accounted for by their utility, is to say what is not merely uncertain, but also improbable. **G. De Craene** ('La croyance au monde extérieur') upholds the scholastic theory as to the externality of the world in opposition to idealist ideology on the one hand and positive ideology on the other.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xx., Heft 4 und 5. **K. Zindler.** 'Ueber räumliche Abbildungen des Continuums der Farbenempfindungen und seine mathematische Behandlung.' [Locality and colour are the only experiences of ordinary life that form continuous manifolds of several dimensions (Riemann). A theoretical discussion of the colour-figure is needed; the experiments necessary for its actual construction have not yet been made. Definition of a psychological colour figure; requirements of continuity, distance and direction. The historical figures: Newton, Mayer, Lambert, Runge; the recent figures of Höfler and Ebbinghaus. Maxwell's colour-triangle. The possibility of such two-dimensional figures proves that the continuum of colour-sensations is not more than tridimensional. Hering's proof of Newton's law of colour-mixture simplified. One-dimensional colour continua: shortest lines, lines of constant curvature, lines of constant direction, mixture-continua. Substitutive measurement of colour-distances. The arithmetical colour-scheme. Helmholtz' investigation of the shortest colour-lines. Methods of construction of the psychological colour-figure: Hering's *Nuancirungsdreieck*, Helmholtz' shortest lines. Colour *v.* geometry in mathematical instruction.] **W. Thorner.** 'Ein neuer stabiler Augenspiegel mit reflexlosem Bilde.' **C. B. Morrey.**

'Die Präcision der Blickbewegung und der Localisation an der Netzhaut-peripherie.' [The error of localisation increases with increase of the distance of the point of stimulation from the centre of the retina. In localising an object in the feld of vision, we incline to bring it too near the fixation-point of the primary position.] **W. Uhthoff.** 'Ein Beitrag zur congenitalen totalen Farnbenblindheit.' [Central acuity of vision 1/5-1/6 of the normal. König's foveal scotoma found. Relation of lateral to central vision dependent on illumination. Nystagmus, corresponding to extent of scotoma. Ophthalmoscopic status normal. Changes of central acuity of vision with intensive change of illumination furnish a general confirmation of the results of König and Pflüger. Stimulus-limen of light sense approximately normal; macular limen higher than eccentric (Hess and Hering). Sensible discrimination a function of intensity of illumination (Hess and Hering). Dark-adaptation quicker than normal. Colour-sense as described by previous observers. Red end of spectrum curtailed; violet not. Maximal brightness in green of 530 μ. Hering's view of white and coloured valence of colours confirmed by comparisons with the normal eye.] **W. von. Zehender.** 'Die Form des Himmelsgewölbes und das Grössererscheinen der Gestirne am Horizont.' [The watch-glass form of the heavens is not a matter of direct observation, but a traditional doctrine. Acute angles, horizontally directed, are underestimated; vertically directed, overestimated. Hence the overestimation of the moon at the horizon, and the supposed watch-glass form of the sky. Both are referable to Volkman's law of the apparent divergence of two vertical parallels. The spherical form of the sky is really better founded than the watch-glass form.] Besprechung. [Martinak on Erdmann, Dodge and Huey (psychology of reading).] Literaturbericht. Vol. xx., Heft 6. **W. Sternberg.** 'Geschmack und Chemismus.' [The only two tastes, in the strict sense, are sweet and bitter. All other 'tastes' are compounds of taste and touch. Bitter makes us hungry, sweet makes us thirsty. In spite of the diametrical difference for sensation, the molecules of sweet and bitter are very closely related, and are easily transformed the one into the other; a proof of the delicacy of the organ, and a fact of teleological significance.] **O. Abraham** und **K. L. Schaefer.** 'Ueber die maximale Geschwindigkeit von Tonfolgen.' [Siren experiments. From contra-octave to fourth accented-octave the trill (tremolo) limen is given with a tonal duration of about 30 σ; the musical interval employed is unimportant. A musical figure can be rightly cognised when the duration of the separate tones is about 100 σ.] **O. Abraham.** 'Ueber das Abklingen von Tonempfindungen.' [We hear a trill (tremolo) when the time of fall is negligible in relation to the duration of the tones, and a rough clang when the time of fall is too long. The foregoing experiments show that the time of fall is the same for all tones, irrespective of pitch. Mayer's results to the contrary are explicable from the principles that a sufficiently large fluctuation of intensity means the inaudibility of the weaker tone, and that high tones are psychologically more intensive than low tones of the same objective strength. Musical experience is explained by resonance and physical after-vibration.] **A. Koenig.** 'Bemerkungen über angeborene totale Farbenblindheit.' [Shows how Uhthoff's results confirm the author's theory as regards the central scotoma, nystagmus, quantitative determinations on spectral complementaries, and comparative visual acuity of normal and totally colour-blind eyes.] Literaturbericht. Vol. xxi., Heft 1 und 2. **H. G. Hamaker.** 'Ueber Nachbilder nach momentaner Helligkeit.' [Experiments with resting stimulus (method of Hess and Bosscha), and with moving stimulus (method of Bidwell). Hypothesis of distribution of

constituent after-image processes to rods and cones. An excellent paper: too detailed for summary.] **L. Hellwig.** 'Ueber die Natur des Erinnerungsbildes.' [If we accept the amœboid-movement theory of the dendrites of the nerve-cell, we can explain the memory image. Stimulation of the cell lengthens the dendrites. Two dendrites, brought into contact by the stimulated activities of two cells, remain stuck together; the cells are permanently combined, and therefore conjointly excitable on the mental side.] **C. Stumpf.** 'Ueber den Begriff der Gemüthsbewegung.' [(1) We need make no distinction between *Affect* and *Gemüthsbewegung*. (2) The emotion, unlike the simple feeling, is based on judgment. The moods are limiting cases between emotions proper and simple feelings. Emotions are acquired; the new-born child shows only a reflex correlation of movement with unpleasant sense-feelings. The judgment of emotion may be in terms of ideas only, not necessarily in terms of perception; and the character of emotion changes, as the present is reinforced by the ideas of past and future. Provisional analysis of the æsthetic emotions. Desire refers to a Should-be, emotion to an Is. The term passion covers habitual states, acquired dispositions of feeling or desire. The peculiar quality of an emotion is indescribable; but the intellectual elements are parts of its substance, not merely conditions of its origin. (3) Critique of Ribot's theory, that there is only a difference of degree between emotion and sense, pleasure and pain. (4) The James-Lange theory contrasted with the 'orthodox' view of emotion. (5) The theory rests on two main arguments: (6) that if all the 'concomitant' organic sensations are taken from an emotion, no emotion is left; while cases of anæsthesia show a dwindling of emotion proportionate to the disappearance of the organic sensations; and (7) that emotions can be set up (by drugs, in certain diseases) under conditions where ideas of object are wholly wanting. Neither can hold its own against criticism. Moreover (8) the basal ideomotor law neglects the fact of the limen. The experiments in support of it are, also, open to objection; and there is evidence against it. Further, when all is granted, the 'reverberation' need not be sensed. (9) Arguments against the theory. The definition of emotion is not convertible. And there is not the requisite intensive, qualitative and temporal correlation between emotion and organic sensation. (10) The emphasis laid on organic sensations may assist in later description and classification. (11) The theory will almost certainly be of service in disentangling the conditions of origin of emotion. The facts of apathia are especially deserving of study.] **C. Stumpf.** 'Beobachtungen über subjective Töne und über Doppelthören.' [A careful record of subjective tones, constant and variable, of rhythmical intermittence of tones and noises, and of diplacusis. The observations begin with the year 1875.] Besprechungen. Literaturbericht.

PHILOSOPHISCHE STUDIEN. Bd. XV., Heft 1. **E. Buch.** 'Ueber die Verschmelzung von Empfindungen, besonders bei Klangeindruecken.'—1. [Definitions of fusion (Stumpf, Cornelius, Kuelpe, Wundt) all tend to express the fact that simultaneously present sensations are less clearly apprehended than isolated sensations. Preliminaries to an examination of the concept: 'sensations' are always conscious phenomena; 'fusion' is determined by the effective co-operation of a plurality of stimuli; we must set out with the conditions of clear apprehension, and work from them to the conditions of fusion. The first such condition is attention, consisting essentially of an inhibition of disturbing impressions at large and of our own movements in particular, but containing also in cases a direct predisposition or adaptation of the sense-organ to a given impression, and implying interest, immediate or mediate, in the result of mental

activity. Attention leads us to apprehension. Apprehension of ideas means their relation and characterisation by aid of other known ideas; it may arise by way of comparison or of association, or both. Interest is centred in the ideas themselves. Apprehension of stimuli means inference from ideas to their external conditions; interest centres in outside reality, and in ideas only so far as is necessary to their interpretation. We pass next to analysis. This requires attention, and is best performed by aid of a fancy-image of the constituent to be analysed-out. Further conditions are intensity of stimuli and subjective receptivity (practice, etc.). It follows that fusion is, originally, the normal mode of manifestation of ideational contents, disappearing gradually with the growth of the faculty of attention. Analysis rather than fusion is the fact to be explained. Difficulties of analysis are distribution of attention; weakness, quickness, etc., of stimuli; lack of practical interest, etc. General comparison of sight with taste and hearing in these regards.] **E. M. Weyer.** 'Die Zeitschwellen gleichartiger und disparater Sinneseindruecke.'—II. [Results. (1) Sight. Temporal limina for the discrimination in daylight of two sparks as against one; for flicker, in dark and daylight; for separation, in dark and daylight. (2) Hearing. (3) Disparate impressions. Touch and hearing, touch and sight, sight and hearing, in both orders, with attention both on the first and on the second stimulus.—An exhaustive study.] **C. D. Pflaum.** 'Neue Untersuchungen ueber die Zeitverhaeltnisse der Apperception einfacher Sinneseindruecke am Complicationspendel.' [Experiments with the complication pendulum. (The author says nothing of the defects of the instrument, unless the words "unguenstige aeussere Umstaende" refer to them: the present writer has never seen an instrument in which the pendulum did not kick at the moment of complication.) Negative time-displacement prevails, but the presence of positive (Wundt) is confirmed (three new observers), as against von Tschisch. A Table gives the extreme values for all five subjects. Unfortunately, the question of Wundt's interpretation and James' criticism is left untouched.]

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Band cxiii., Heft 1. November. **Eduard von Hartmann.** 'Zur Auseinandersetzung mit Herrn Professor D. Dr. A. Dorner in Koenigsberg.' [As the title indicates, this article is a statement of the points at issue between the great pessimist and his Koenigsberg critic. There are some nine headings ranging over ethics, psychology and metaphysics. Von Hartmann aims at giving rather a clear statement of the differences than an argument offensive or defensive.] **Dr. Raoul Richter.** 'Die Methode Spinozas.' [Spinoza's philosophy never loses its attractiveness; its matter keeps in touch with the most modern speculation, and its method suggests more ideas to our present critical epoch than that of any other great thinker. That method cannot be fairly described as ontological, we must put it more explicitly as *consciously* ontological. The constantly recurring transition from logical processes to real, from *ratio* to *causa*, expresses no mere fallacy of ignorance but the metaphysical foundation of the system, the equation on which the Ethics is based, the logical = the real. To him "who has once tasted Kritik" the system appears as one in which certain abstract ideas receive carefully constructed definitions, and the bulk of the subsequent development consists in unfolding the elements thus wrapped up, and smuggling in the predicate of real existence. But Spinoza more than once expresses his contempt for abstract ideas; he censures the Stoics for thus corrupting their system, and asserts the uselessness of all *notiones universales et transcendentales*. Truth comes not from abstraction but from the *notiones communes*.

Herein lies the difficulty and the justification of the system, the true discrimination of the *universalis* as abstract and the *communis* as concrete (any translation of the latter term must cause confusion). *Notiones communes* represent what is wholly concrete, nay ultimately, solely of what is most concrete of all, Substance, God. Thus alone can we explain the warning "*ne misceamus quae sunt in intellectu cum iis quae sunt in re*," . . . a warning that otherwise so strangely contradicts the fundamental equation. Further, Spinoza not merely disclaims a smuggled ontology, he even assigns the source of the illusion. "Thus (*i.e.*, from the nature of this distinction) those fixed and eternal things, though singulars, will be to us, on account of their ubiquity and widespread power, *as though* they were universals or species." The system no longer appears as an unconscious transition from thought to reality, but conversely, as an endeavour to give in the understanding the truest possible exposition of the course of nature. Thus proof of the real existence of the content of the *notiones communes* there cannot be; the existence itself would be classed as one of the *notiones universales*. Thus the *proof* of God's existence must take a secondary place; properly speaking it is postulated. In confirmation of the theory advanced, the author points to the account of the degrees of knowledge—the highest being not demonstration but intuition. Then, too, the "criterion of truth" rests not on proof but on an immediate feeling of certainty. "As light reveals both itself and darkness, so truth is its own standard and that of the false." Why if truth be not proof, does Spinoza overwhelm us with proofs? The answer must be that man's impotence, his subjection to passion, shuts him out from the high road to truth, leaving open only the second best pathway through proof. In further confirmation the author points out that the famous "Parallelism" must now receive a position in Spinoza's methodology as well as its accepted metaphysical import. Correctly stated it asserts that *adequate* thought corresponds to actual existence; hence the development of knowledge out of the highest notions becomes a mirror of the development of things and events in nature itself.] **Lic. Dr. C. Lülmann in Stettin.** 'Fichtes Anschauung vom Christenthum.' [After stating in exhaustive subdivisions Fichte's views of Christianity, Dr. Lülmann proceeds to a detailed criticism. His conclusion is that, following Kant's impulse, Fichte attempted to base Christianity on a foundation not dogmatic but purely speculative. That the first attempts failed need not cause surprise.] **Adolf Lasson.** 'Jahresbericht ueber Erscheinungen der philosophischen Litteratur in Frankreich aus den Jahren 1894-1895.' [A full and appreciative account of the philosophical productions of French writers during the two years mentioned. Its sympathetic character appears in the terms in which the author estimates the value of the work accomplished:—The older literary excellencies of France are still to the fore, clearness of thought, skill in arrangement, agreeableness in form. New merits have appeared, an endeavour after thoroughness and a comprehensive erudition seeking to make use of whatever may have been done elsewhere or at other times.]

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxxiii., Heft 3. **Christian v. Ehrenfels.** 'Entgegnung auf H. Schwarz' Kritik der empirischen Willenspsychologie.' [S. objects that on E's theory the difference between an actual and a merely possible state of feeling is treated as an operative factor in mental process. E. replies that this is a misunderstanding, and illustrates by reference to water falling down a height and always tending to a lower level, though its descent is not determined by the difference in height between the point from which it falls and that to which it descends. In answer to other

points urged by S., it is maintained that strength of will is not the intensity of an actual state of consciousness, and also that aversion is not essentially distinct from desire, being only a desire for the non-existence of something.] **E. Posch.** 'Ausgangsspunkte zu einer Theorie der Zeitvorstellung.' [Duration is nothing but existence considered in reference to time. Two ways in which the conception of duration arises. Measurement is an essential constituent of this concept. What is really meant by the irreversibility of the Past. The spatial setting of our representation of time relations. The discussion of this point is especially valuable.] **Paul Barth.** 'Fragen der Geschichtswissenshaft.' [Besides descriptive history, which can never be reduced to a scheme of causal uniformities, there must also be a conceptual treatment of history which aims at formulating such a scheme and finds its basis in the results of scientific psychology.] Besprechungen.

Archiv für Systematische Philosophie. Band v., Heft 3. **B. Tschitscherin.** 'Raum und Zeit' (Schluss). [An outline sketch of a system of ontology which we do not venture to reproduce in a brief abstract.] **L. Goldschmidt.** 'Kant's Voraussetzungen und Prof. Dr. Fr. Paulsen. [A sharp attack on Paulsen's exposition of Kant. It is maintained that Kant's main aim is to deny the possibility of metaphysical knowledge as contrasted with practical faith, and to show that the conditions which make knowledge possible in natural science are wanting in metaphysical speculation. Kant does not aim at justifying the validity of mathematical and natural science; he assumes this validity.] **Heinrich Grünbaum.** 'Zur Kritik der Modernen Causalanschauungen.' [Gives a systematic classification of various views of the causal relation by reference to three questions: (1) What is the essential characteristic of the relation expressed in the causal judgment? (2) How far and in what sense are such judgments logically valid? (3) What is the methodological value of the category of causation? and what modifications does it require for scientific purposes? Discussion of the views of Riehl, Sigwart and Wundt.] **H. Kleinpeter.** 'Ueber den Begriff der Erfahrung. Ein Nachtrag.' **J. Baumann.** 'Ist Mach von mir missverstanden worden?' Zeitschriften, etc.

Philosophisches Jahrbuch. Bd. xi., Heft 4. **C. Gutberlet.** 'Der Psychophysische Parallelismus.' [The writer does not deny the parallelism of mental and bodily acts, but he maintains that they proceed from the substantial union of the soul with the body, against other theories from that of Spinoza to that of Külpe. He discusses at length Jodl's views on the subject. The idea of mental and extra mental phenomena being two different aspects of the same reality is untenable; for who is there to see those aspects and distinguish between them? But Jodl goes farther and identifies them absolutely. If so, both matter, thought of apart from mind, and mind thought of apart from matter, would be mere abstractions, which is not the case.] **N. Kaufmann.** 'Die Methode des Mechanischen Monismus.' [The mechanical theory of Monism, though as old as Empedocles, claims to be the only possible means of reconciling religion with science, by means of a world-soul, or God, residing in each atom, and giving it force and movement. But it denies God's personality, and therefore amounts to Atheism; also human freedom and the immortality of the soul, by an unproved and unprovable hypothesis. It is to this hypothesis, not to the laws of science, that religion is opposed. Note that there is a theistical theory of Monism which, admitting God's immanence, also affirms His transcendency: this would not come into conflict with religion.] **N. v. Seeland.** 'Zur Frage son dem Wesen des Raumes.' [The two theories of

space (setting aside Kant's, the third) either, with most physicists, gives it a real existence, or, with the majority of philosophers, makes it a mere abstraction. The writer, in this, the first of two articles, tries to solve the question in the latter sense, pointing out the difference between extension and intrinsic coexistence of qualities; the latter, if taken away in part, profoundly modify the being from which they are taken.]

PFLÜGER'S ARCHIV F. D. GES. PHYSIOLOGIE. Bd lxvi., Heft 3 und 4. **F. Hoffmann** und **R. Bunzel.** 'Untersuchungen ueber den elektrischen Geschmack.' **T. H. Van de Velde.** 'Ueber willkuerliche Vermehrung der Pulsfrequenz beim Menschen.' Heft 7 und 8. **Guillery.** 'Zur Physiologie des Netzhautcentrums.' Heft 9 und 10. **J. Loeb.** 'Zur Theorie der physiologischen Licht und Schwerkraftwirkungen.' Bd. lxvii., Heft 1 und 2. **W. W. Norman.** 'Duerfen wir aus den Reaktionen niederer Thiere auf das Vorhandensein von Schmerzempfindungen schliessen?' Heft 5 und 6. **A. Bickel** und **J. R. Ewald.** 'Ueber den Einfluss der sensibelen Nerven und der Labyrinthe auf die Bewegungen der Thiere.' Heft 11 und 12. **T. Beer.** 'Die Akkommodation des Kephalopodenauges.' Bd. lxviii., Heft 1 und 2. **F. Schenck.** 'Ueber intermittirende Netzhautreizung.' **H. Griesbach.** 'Ein neues Aesthesiometer.' **S. Garten.** 'Beitraege zur Kenntniss des Zeitlichen Ablaufs der Pupillarreaktion nach Verdunklung.' Heft 3 und 4. **Guillery.** 'Ueber die Empfindungskreise der Netzhaut.' Heft 10, 11 und 12. **J. Breuer.** 'Ueber Bogengaenge und Raumsinn.' Bd. lxix., Heft 3 und 4. **W. A. Nagel.** 'Notiz betreffend den Lichtsinn augenloser Thiere.' Heft 7 und 8. **M. von Vintschgau** und **A. Durig.** 'Zeitmessende Versuche ueber die Unterscheidung zweier elektrischer Hautreize.' Heft 11 und 12. **T. Beer.** 'Die Akkommodation des Auges bei den Reptilien. **E. Barth.** 'Beitrag zur Taubstummforschung.' Bd. lxx., Heft 1 und 2. **O. Zoth.** 'Eine neue Methode zur Mischung objectiv dargestellter Spektralfarben.' **A. Bethe.** 'Duerfen wir den Ameisen und Bienen psychische Qualitaeten zuschreiben?' Heft 7 und 8. **A. Tschermak.** 'Ueber die Bedeutung der Lichtstaerke und des Zustandes des Sehorganes fuer farblose optische Gleichungen.' Heft 9 und 10. **Guillery.** 'Messende Untersuchungen ueber den Lichtsinn bei Dunkel- und Hell-adaptation.' **J. Breuer** und **A. Kreidl.** 'Ueber die scheinbare Drehung des Gesichtsfeldes waehrend der Wirkung einer Centrifugalkraft.' Bd. lxxi., Heft 1 und 2. **W. Einthoven.** 'Eine einfache physiologische Erklaerung fuer verschiedene optische Taeuschungen.' **E. von Cyon.** 'Die Functionen des Ohrlabyrinths.' Heft 3 und 4. **C. Hess** und **E. Hering.** 'Untersuchungen an total Farbenblinden.' Heft 9 und 10. **F. Melde.** 'Ueber einen neuesten A. Appunnschen Hoerpruefungsapparat.' Heft 11 und 12. **Guillery.** 'Ueber intermittirende Netzhautreizung bei bewegtem Auge.' Bd. lxxii., Heft 7 und 8. **S. Bloom** und **S. Garten.** 'Vergleichende Untersuchung der Sehschaerfe des hell- und des dunkel-adaptirten Auges.' Bd. lxxiii., Heft 1 und 2. **T. Beer.** 'Vergleichend-physiologische Studien zur Statocysten-function.' **Guillery.** 'Ueber die Schnelligkeit der Augenbewegungen.' Heft 3 und 4. **S. Exner.** 'Studien auf dem Grenzgebiete des localisirten Sehens.'

RIVISTA ITALIANA DI FILOSOFIA. September-October. **Prof. Carlo Cantoni.** 'Lettera del Prof. Carlo Cantoni al Prof. Attilio Gnesotto. [Prof. Cantoni's reply to criticisms of his treatment of sensation in his *Corso Elementare di Filosofia.*] **N. Fornelli.** 'Dopo la Morte del Comte —Littrè ed. i Comtisti.' [In connexion with the centenary of the birth of Comte last year (1898), the writer offers an appreciation of the present position of Positivism. Here the question arises as to which thinkers are

"orthodox," and the position of Littrè is discussed. Following Antoine, the author of this paper designates him as a successor greater than his master. Littrè, though eclectic, was a more powerful thinker than Laffitte, the head of the orthodox branch of the school. It is interesting to learn that Comte has followers in Brazil and Chili, though perhaps some of the political events claimed as instances of the Positivist spirit in England, such, for instance, as protests against Mr. Gladstone's "Coercion Bill" of 1881, may be assigned to other causes. It is noteworthy that all such examples are of the nature of protests, which tends to show a want of constructive power.] **R. Bianchi.** 'Il Naturalismo e la Filosofia di Diderot.' [An appreciative account of Diderot's work as a thinker, in which an interesting passage is quoted from *Pensées sur l'Interpretation de la Nature* (*Liv. XII.*), anticipatory of modern evolution. In connexion with Diderot's share in the *Encyclopædia*—he contributed no less than 990 articles—the dates of most of the earlier works of the kind are mentioned.] **A. Bartolomei.** 'I Principi Fondamentali dell' Etica di Roberto Ardigò.' [This instalment discusses Ardigò's inconsistency in mentioning human autonomy when at the same time he holds man is determined by the social ideal. The former view is described as an "anthropocentric prejudice" leading to an atomic theory of society. In so far as Ardigò has been influenced by Spencer, it is contended that the norm of right conduct should not be derived from Biology, but rather from Sociology (*to be continued*).] Bibliografia. Bollentino, etc.

IX.—NOTES.

HEGEL'S EARLY STUDIES—A CORRECTION.

In the January number of MIND (No. 29) p. 12, note 1, I quoted from Rosenkranz's *Life of Hegel* a definition of logic, written down by him in a note-book while he was a schoolboy at the Gymnasium: "*ein Inbegriff der Regeln des Denkens, abstrahirt aus der Geschichte der Menschheit*". This looks like a curious suggestion for his later attempt to find the logical categories writ large in the process of historical development. But it has been pointed out to me by Mr. J. B. Baillie, that Rosenkranz has probably misread or misprinted the extract, and that it ought to run: "*ein Inbegriff der Regeln des Denkens*"—*abstrahirt aus der* "*Geschichte der Menschheit*". A book called the *Geschichte der Menschheit* by Meiners was one of those Hegel was reading at the time (Rosenkranz, p. 14). It may seem odd that the boy should have thought it worth while to give the source of so commonplace a definition, but it is characteristic of Hegel's plodding conscientiousness: and it is certainly worth noting that the future philosopher should have come upon his first conception of Logic in a book on History. So, though I must give up a striking quotation, I retain a piece of evidence for the general thesis—that Hegel approached logic through the study of history, and not *vice versâ*.

D. G. RITCHIE.

AMERICAN AGENT FOR *MIND*.

Mr. G. E. Stechert, 9 East Sixteenth Street, New York, has been appointed sole Agent for MIND in the States. All subscriptions for the States should be sent direct to the American Agent.

UNIV.
OCT 24 1899

MSS. and other Communications for the Editor, except those from America, should be addressed to Dr. G. F. STOUT, Corpus Christi College, Oxford.
All American Communications should be addressed to Professor E. B. TITCHENER, Cornell University, Ithaca, N.Y.

NEW SERIES. No. 32. OCTOBER, 1899.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

DR. G. F. STOUT,

WITH THE CO-OPERATION OF PROFESSOR H. SIDGWICK, DR. E. CAIRD, PROFESSOR WARD, AND PROFESSOR E. B. TITCHENER.

CONTENTS.

	PAGE
I.—Psychological Philosophies: SHADWORTH H. HODGSON	433
II.—Routine Process: GUSTAV SPILLER	439
III.—Philosophical Terminology (II.): Dr. FERDINAND TÖNNIES (Trans. by Mrs. B. BOSANQUET) . .	467
IV.—The Spatial Harmony of Touch and Sight: G. M. STRATTON	492
V.—Kant's Proof of the Proposition, "Mathematical Judgments are One and All Synthetical": BRUCE MCEWEN .	506
VI.—Critical Notices:	
C. v. Ehrenfels, *System der Werttheorie*: J. S. MACKENZIE	524
J. P. Durand (De Gros), *Aperçus de Taxinomie Générale*: B. BOSANQUET	531
H. R. Marshall, *Instinct and Reason*: R. R. MARETT .	536
H. Münsterberg, *Psychology and Life*: F. C. S. SCHILLER	540
VII.—New Books	544
VIII.—Philosophical Periodicals	558
IX.—Notes: Hegel's Early Studies—A Correction. American Agent for MIND	568

WILLIAMS AND NORGATE,

14 HENRIETTA STREET, COVENT GARDEN, LONDON;

20 SOUTH FREDERICK STREET, EDINBURGH;

AND 7 BROAD STREET, OXFORD.

G. E. STECHERT, 9 EAST SIXTEENTH STREET, NEW YORK.

Price Three Shillings.

All Rights Reserved.

Yearly Subscribers will receive MIND *post-free* from the Publishers on payment (in advance) of Twelve Shillings within, or Fourteen Shillings without, the Postal Union.

Messrs. MACMILLAN & CO.'S

NEW BOOKS ON PHILOSOPHY.

FROM COMTE TO BENJAMIN KIDD. The Appeal to Biology or Evolution for Human Guidance. By Prof. ROBERT MACKINTOSH, B.D. (Edin.), M.A., D.D. (Glasg.). 8vo, 8s. 6d. net.

PALL MALL GAZETTE.—"A brilliant study towards elucidating the foundations of sociology. Though worked out on independent lines, it recalls in much of its doctrine the *cité moderne* of the leading French sociologist, Izoulet, and this is high praise indeed."

ASPECTS OF RELIGIOUS AND SCIENTIFIC THOUGHT. By the late RICHARD HOLT HUTTON. Selected from the *Spectator*, and Edited by his Niece, ELIZABETH M. ROSCOE. With Portrait. Globe 8vo, 5s. [*Eversley Series.*

LITERATURE.—"Readers of many kinds, and of many varieties of theological and philosophical opinion, will welcome this volume of selections. . . . Certainly among the most characteristic writings of their author."

THE PHILOSOPHICAL THEORY OF THE STATE. By BERNARD BOSANQUET. 8vo, 10s. net.

SPECTATOR.—"A very fine and important contribution to political philosophy."

THROUGH NATURE TO GOD. By JOHN FISKE. Globe 8vo, 3s. 6d.

ACADEMY.—"A book that shall both stimulate the sluggish mind and confirm the feeble of heart."

A HISTORY OF MODERN PHILOSOPHY: a Sketch of the History of Philosophy from the Close of the Renaissance to our own Day. By Dr. HARALD HÖFFDING. Translated from the German by B. E. MEYER. 2 vols. 8vo. [*Shortly.*

THE SOCIAL PHILOSOPHY OF RODBERTUS. By E. C. K. GONNER, M.A. 8vo. [*Shortly.*

MACMILLAN & CO., LTD., LONDON.

Just Published, 8vo, 18/-.

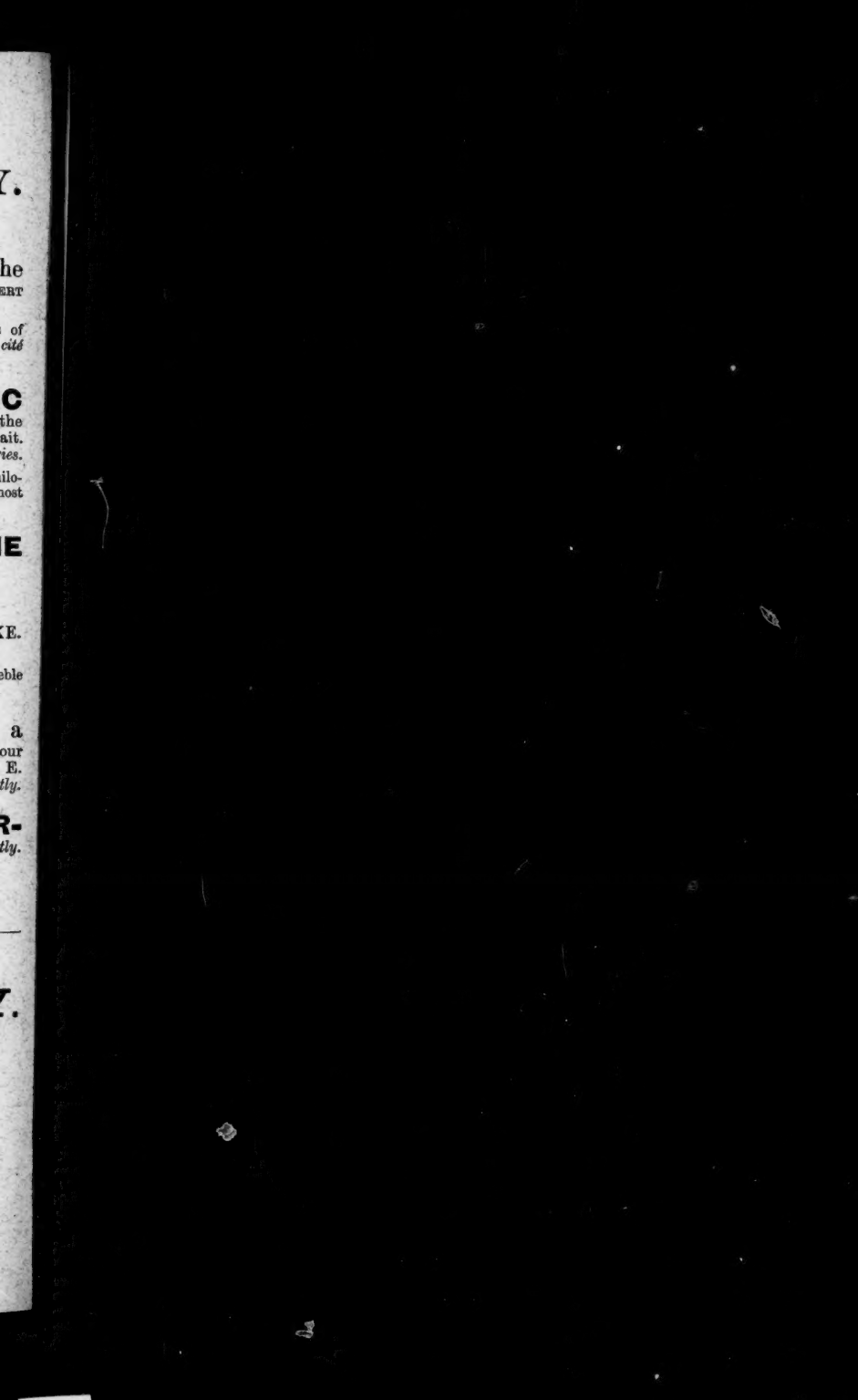
A THEORY OF REALITY.

An Essay in Metaphysical System upon the Basis of Human Cognitive Experience.

By GEORGE TRUMBULL LADD,

Professor of Philosophy in Yale University.

London: LONGMANS, GREEN, AND CO.



Williams & Norgate's Announcements.

Just published, demy 8vo, cloth, 9s. net.

A CRITICAL COMMENTARY ON THE BOOK OF DANIEL. Designed especially for Students of the English Bible. By J. DYNELEY PRINCE, Ph.D., Professor of Semitic Languages in the New York University.

In the Press, to be ready early in October, demy 8vo, Second Edition, Revised and Improved.

THE FIRST THREE GOSPELS IN GREEK. Arranged in Parallel Columns. By Rev. COLIN CAMPBELL, D.D., of Dundee.

Just published, crown 8vo, cloth, 3s. 6d.

THE BOOK OF BANDER. A Scripture-form Story of Past and Present Times. By the Author of "The New Koran," "The Crucifixion Mystery," etc.

"It is a marvellously vivid narrative in scriptural form of the historical progress of the human race. As a literary experiment it deserves much praise. It is of a distinct ethical value."—*Westminster Review.*

Demy 8vo, cloth, 10s. 6d.

THE ELEMENTS OF LAW, NATURAL AND POLITIC. By THOMAS HOBBES, of Malmesbury. Edited with a Preface and Critical Notes by FERDINAND TÖNNIES, Ph.D. To which are subjoined selected extracts from unprinted MSS. of Thomas Hobbes.

"If with or without the chapters hitherto known as *De Corpore politico*, the other chapters passing as *Human Nature* have taken rank as a philosophical classic. Still more may that distinction be henceforth claimed for the *Elements of Law, Natural and Politic*, now at last correctly and completely presented with all the traces of Hobbes' hand upon it."—*Mind.*

Demy 8vo, cloth, 10s. 6d.

BEHEMOTH; OR, THE LONG PARLIAMENT. By THOMAS HOBBES, of Malmesbury. Edited for the first time from the original MS. by FERDINAND TÖNNIES, Ph.D.

Demy 8vo, 456 pp., cloth, nearly ready.

A FREE INQUIRY INTO THE ORIGIN OF THE FOURTH GOSPEL. By P. C. SENSE, M.A.

8vo, cloth, price 7s. net.

OUTLINES OF PSYCHOLOGY. By WILHELM WUNDT. Translated, with the Co-operation of the Author, by CHARLES HUBBARD JUDD, Ph.D., Instructor in the Wesleyan University.

Digest of Mr Herbert Spencer's Works—The Philosophy Completed.

Fourth and Enlarged Edition, now ready. 8vo, cloth, 21s.

EPITOME OF THE SYNTHETIC PHILOSOPHY OF HERBERT SPENCER. By F. HOWARD COLLINS. With a Preface by HERBERT SPENCER.

Concluding Volume in the Press.

HISTORY OF DOGMA. Vol. VII. With a complete Index. By Dr. ADOLPH HARNACK, Ordinary Professor of Church History in the University and Fellow of the Royal Academy of Science, Berlin. Translated from the Third German Edition by the Rev. JAMES M'GILCHRIST. Edited by the late Rev. Professor A. B. BRUCE, D.D.

"No work on Church history in recent times has had the influence of Professor Harnack's 'History of Dogma'."—*Times.*

"A book which is admitted to be one of the most important theological works of the time."—*Daily News.*

WILLIAMS & NORGATE,

14 HENRIETTA STREET, COVENT GARDEN, LONDON; 20 SOUTH FREDERICK STREET, EDINBURGH; AND 7 BROAD STREET, OXFORD.

THE
PHILOSOPHICAL REVIEW,

EDITED BY

J. G. SCHURMAN,

J. E. CREIGHTON and JAMES SETH.

The **REVIEW** is a bi-monthly journal devoted to the interests of the philosophical sciences: Logic, Psychology, Ethics, Æsthetics, Metaphysics, and the Philosophy of Religion. It has now completed its sixth year, and is recognised both at home and abroad as the representative American journal of philosophy. The terms of its endowment require that it shall be an absolutely free organ of contemporary philosophy.

The **REVIEW** usually contains 112 pages. About one-half of the space of each number is given to **original articles** and **discussions.** The remainder includes carefully prepared **critical reviews** of the most important books, **classified summaries** of articles appearing in the leading American and European philosophical magazines, prompt and trustworthy accounts of the contents and character of **new books,** and **notes** of general interest regarding philosophers and the progress of philosophy. Special attention is directed to the **classified summaries** which enable a reader of the **REVIEW** to learn at a minimum of trouble, labour and expense what results and conclusions, bearing on the subject in which he is specially interested, are appearing from time to time in the other philosophical periodicals.

Articles intended for publication, books for review, exchanges, and all correspondence in reference to these, should be addressed to Professor **J. E. Creighton, Cornell University, Ithaca, N.Y.** Authors of newly published philosophical works are requested to send a brief account of their scope and content for publication. Subscriptions may be forwarded, when more convenient, through any of the publishers' European agents, but otherwise all business communications should be addressed to

THE MACMILLAN COMPANY,

41 N. Queen Street, Lancaster, Pa., or 66 Fifth Avenue, New York.

Yearly Subscriptions, $3·00 (12s. 6d.); Single numbers, 60 cents (3s.).

2

THE PSYCHOLOGICAL REVIEW.

The regular numbers of *The Psychological Review* are issued bi-monthly on the first days of January, March, May, July, September, and November, and contain about 112 large octavo pages. The space is about equally divided between research work and critical articles, and reviews and discussion of psychological literature.

The Annual Subscription is $4.00 (16*s.* 6*d.*). *Single Numbers, 75 cents* (3*s.*).

As part of *The Review* there is published annually

THE PSYCHOLOGICAL INDEX,

a bibliography prepared by Prof. H. C. WARREN, of Princeton University (with German and French collaborators). The issues of *The Index* for the years 1894, 1895, 1896, 1897 and 1898, have been published. It is sent without charge to subscribers to *The Review*, and may be purchased separately (3s.).

As part of *The Review* there is also published a series of

MONOGRAPH SUPPLEMENTS,

consisting of longer researches or treatises which it is important to publish promptly and as units.

The *Monographs* already issued are as follows :—

VOL. I. $4.00 (16s. 6d.).

I. On Sensation from Pressure and Impact: HAROLD GRIFFING. Pp. ii + 88. 75 cents.

II. Association: MARY WHITTON CALKINS. Pp. vii + 56. 50 cents.

III. Mental Development of a Child: KATHLEEN MOORE. Pp. iv + 150. $1.25.

IV. A Study of Kant's Psychology: EDWARD FRANKLIN BUCHNER. Pp. viii + 208. $1.50.

VOL. II. $4.00 (16s. 6d.).

V. Problems in the Psychology of Reading: J. O. Quantz. Pp. iv + 51. 50 cents.

VI. The Fluctuation of Attention: JOHN PERHAM HYLAN. Pp. ii + 78. 75 cents.

VII. Mental Imagery: WILFRID LAY. Pp. ii + 59. 50 cents.

VIII. Animal Intelligence: EDWARD L. THORNDIKE. Pp. ii + 109. $1.00.

Orders may be forwarded with postal notes, direct to New York. The German Agents are MAYER & MÜLLER, Prinz Louis Ferdinandstrasse, Berlin (M. 16.50); and the French, H. WELTER, Rue Bonaparte, 59, Paris (Fr. 2)

Articles for publication and books for review may to Prof. J. MARK BALDWIN, Princeton, New Jersey, or to Prof. J. McK. C[illegible]LL, Garrison-on-Hudson, New York.

THE MACMILLAN COMPANY,

66 FIFTH AVENUE, NEW YORK; AND LONDON.

NEW PHILOSOPHICAL PUBLICATIONS.

TRUTH AND ERROR; or, The Science of Intellection.

By J. W. POWELL, Director of the United States Bureau of American Ethnology and sometime Director of the United States Geological Survey. Pages, 423. Cloth, 7s. 6d.

A highly original work on psychology, dealing largely with epistomology. Enunciates a new doctrine of judgments. Discusses the properties of matter; also fallacies, and the theory of ghosts, as treated by the Society for Psychical Research.

A Chinese Philosophical Classic.

LAO-TZE'S TAO-TEH-KING.

Chinese English. With an Introduction, Translation, Transliteration and Notes. By Dr. PAUL CARUS. Pages, 360. Cloth, 15s.

THE ETHICAL PROBLEM.

Three Lectures on Ethics and Science. By Dr. PAUL CARUS. Second Edition, enlarged by a discussion of the subject by William M. Salter, John Maddock, F. M. Holland, Prof. Friedrich Jodl, Dr. R. Lewins, Prof. H. Höffding and Prof. L. M. Billia. With Replies by the Author. Just published. Pages, 351. Cloth, 6s. 6d.

THE ANALYSIS OF THE SENSATIONS.

By ERNST MACH, Professor of the History and Theory of Inductive Science in the University of Vienna. Pages, xi + 208. Cuts, 37. Cloth, 6s. 6d.

". . . Like everything he writes, a work of genius."—Prof. W. JAMES, of Harvard.

"There is no work known to the writer which in its general scientific bearing is more likely to repay richly thorough study. We are all interested in nature in one way or another, and our interests can only be heightened and clarified by Mach's wonderfully original and wholesome book."—Prof. J. E. TREVOR in *The Journal of Physical Chemistry.*

LECTURES ON ELEMENTARY MATHEMATICS.

By JOSEPH LOUIS LAGRANGE. With Portrait of the Author. Pages, 160. 5s. Includes Lectures on "Arithmetic," "Algebra," "The Resolution of Numerical Equations" and "The Usage of Curves in the Solution of Problems". A masterpiece of mathematical and philosophical exposition. Never before published in English, nor in separate form in French.

ON THE STUDY AND DIFFICULTIES OF MATHEMATICS.

By AUGUSTUS DE MORGAN. New Edition, with a fine Portrait of the great Mathematical Teacher, Complete Index and Bibliographies of Modern Works on Algebra, the Philosophy of Mathematics, Pangeometry, etc. Pages, viii + 288. Cloth, 5s.

PHILOSOPHICAL AND PSYCHOLOGICAL PORTRAITS.

A Selected Series of large-sized Portraits of the World's Philosophers and of representative Psychologists (11 by 14 in.), suitable for framing and hanging in public and private libraries, etc., is now ready. The Portraits are taken from the best sources, and are high-grade photogravures. Both series (68 Portraits), 35s.; or either series alone (34 Portraits), 24s. A neat Portfolio, 5s. additional.

CHICAGO: THE OPEN COURT PUBLISHING CO.

LONDON: KEGAN PAUL, TRENCH, TRÜBNER & CO., LIMITED,
PATERNOSTER HOUSE, CHARING CROSS ROAD, W.C.